DOCUMENT RESUME

ED 242 394 PS 013 695

AUTHOR	Lengel, James G.
TITLE	Handbook for Improving Early Education.
INSTITUTION	Vermont State Dept. of Education, Montpelier. Div. of Basic Education.
PUB DATE	[82]
NOTE	69p.; Checklist on page 48 contains small type.
PUB TYPE	Guides - Non-Classroom Use (055)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Check Lists; *Child Development; *Community Involvement; Day Care Centers; *Early Childhood Education; Educational Principles; Guidelines; Kindergarten; Parent Child Relationship; Parent Influence; *Parent Teacher Cooperation; Program Development; *Program Improvement
IDENTIFIERS	PF Project; Vermont

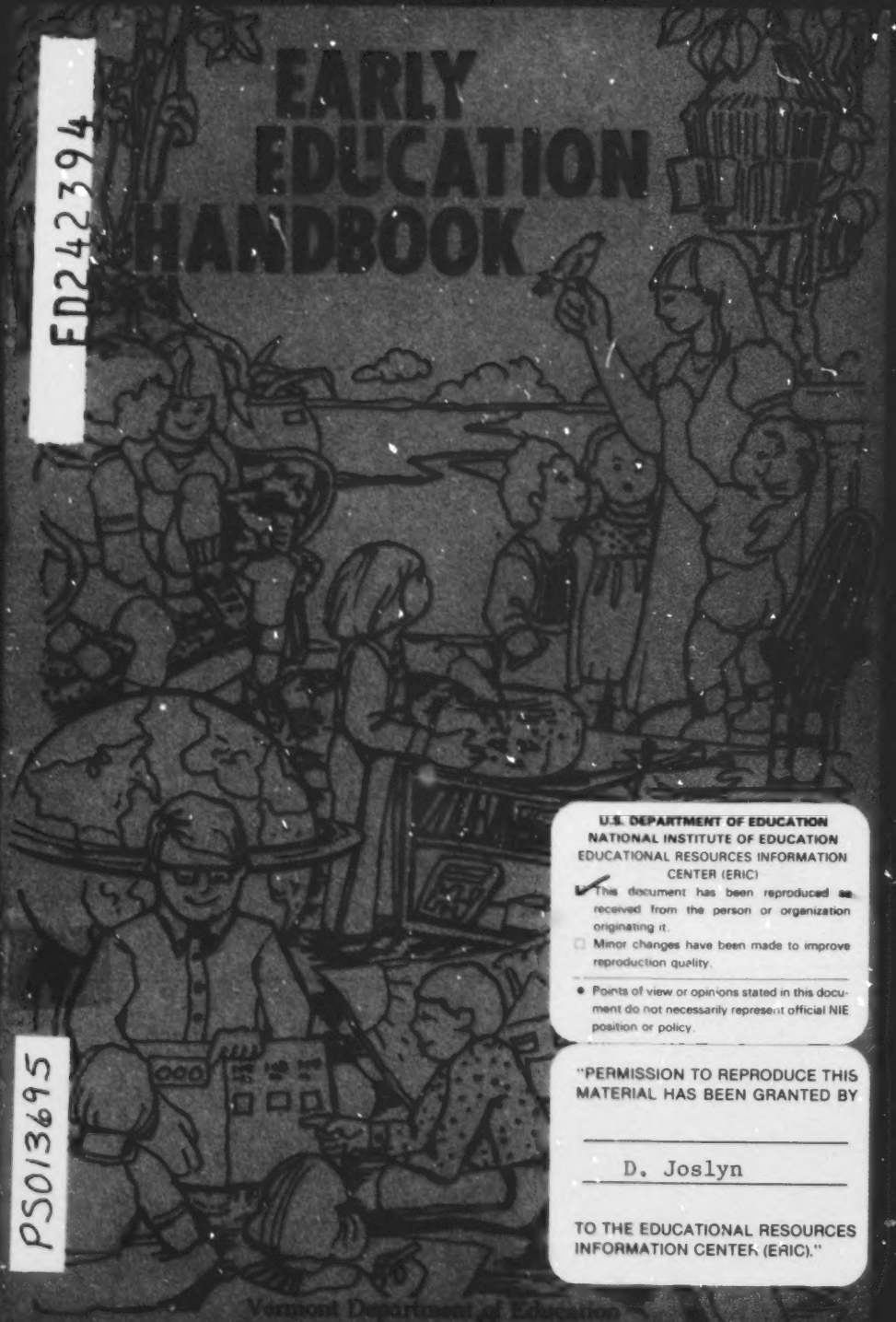
ABSTRACT

This handbook describes ways that families, schools, and child-care centers can work together to achieve Vermont's state goals for early childhood education. The following topics are presented: (1) the goals and principles guiding Vermont's early education program; (2) the role of kindergarten in a child's educational career; (3) the need to shift the emphasis of the primary curriculum so that it focuses on higher expectations, concept learning, and an orientation to child development; (4) how to organize schools for child development; (5) how to create a developmental environment for three to four year olds who spend part of their day with a caretaker other than their parents; (6) the role of parents in their child's development and ways they can provide support to teachers; and (7) five steps a community can follow when implementing an early childhood education program. The appendices include: community self-assessment checklists; "The Research Background for Early Childhood Education," a report compiled from three areas of early education study; and the names and locations of existing projects and resources. (JW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED242394

EARLY EDUCATION HANDBOOK



PS013695

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

D. Joslyn

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Vermont Department of Education

STATE OF VERMONT

Governor
Richard A. Snelling

Commissioner of Education
Stephen S. Kaagan

Deputy Commissioner of Education
Patricia M. Zyber

VERMONT STATE BOARD OF EDUCATION

Viola L. Luginbuhl, Chair	Burlington
A. Shirley Tyler, Vice-Chair	Brattleboro
Robert S. Gillette	Montpelier
James W. Herlihy, Jr.	Rutland
Martha H. O'Connor	Brattleboro
Louise R. Swainbank	St. Johnsbury
Thomas P. Whalen	Manchester Center

The Vermont Department of Education insures equal employment and educational opportunities regardless of race, color, creed, age, handicap, national origin, or sex, in compliance with federal and state law.

HANDBOOK FOR IMPROVING EARLY EDUCATION

by James G. Lengel

ACKNOWLEDGEMENTS

The parents and educators of Vermont who inspired the development of this handbook deserve mention and thanks. So do Governor Richard A. Snelling and Commissioner of Education, Stephen S. Kaagan, who directed its production.

Many Vermonters contributed words and ideas. Larry Shelton and Charles Rathbone from the University of Vermont developed the research section and helped to hash out many of the concepts in the text. DeeDee Jameson, also of UVM, wrote the section on the parent's role. Hannelore Boerner, George Tanner, Bob Kenney, Dan Gregg, and John Thomas Poeton at the Department of Education helped to write some of the curriculum sections. Elaine Bernier word-processed the text, and Lynn Provasi arranged for its printing and production. Joyce Wolkomir arranged for the graphic art, which was done by Janet Fredericks.

Most of the ideas, though, came from the school principals, teachers and child-care professionals who work every day with young children. Their examples and their arguments and their experience form the core of this initiative.

James G. Lengel, Director
Division of Basic Education
Vermont Department of Education

CONTENTS

Acknowledgements *ii*
Foreword *iv*

INTRODUCTION 1
The Goals of Early Education 1
Guiding Principles 2

COMPONENTS OF EARLY EDUCATION 5
The Role of Kindergarten 5
Enriching the Primary Curriculum 7
- Language Arts 8
- Mathematics 10
- Science 13
- The Arts 16
- Social Studies 16
- Health 18

Organizing Schools for Child Development 19
- High Expectations 20
- School Leadership 20
- Environment and Equipment 21
- Adults and Small Groups 23
- Flextime 24

Developmental Care for Three and Four Year Olds 26
The Role of Parents 30

STEPS FOR COMMUNITY ACTION 34
Self Assessment 34
Identify Improvement Projects 39
Gather Resources 40
Implement Projects 41
Re-Assess Progress 42

APPENDICES
Self-Assessment Instruments
Compendium of Research Results
Names and Addresses of Projects and Resources

FOREWORD

Every young Vermonter deserves the chance to begin elementary school with a firm foundation and a running start. This handbook will help communities find new ways to give both of these to every child. I applaud the efforts of those Vermont towns already doing this work, and encourage others to begin undertaking it. From all that we know, early education has a lasting, positive impact on the lives of children as they proceed through school and after they leave school for work and adult life.

Stephen S. Kaagan
Commissioner
Vermont Department of Education

INTRODUCTION

Vermonters have developed a lively interest in the education of young children. All over the state, parents, communities, schools and child-care workers are confident that we can do better by our young people, that we can improve their lives and their later education if we do well by them in their early years. This optimism, fueled by encouraging results from research and by successful programs in Vermont, has caused us to look closely at what happens to Vermonters between age three and grade three.

Many communities, and the State as a whole, are on the verge of making major investments in young children's education. The State Department of Education offers this *Handbook* as a guide and source of ideas that might shape the nature of those investments.

THE GOALS OF EARLY EDUCATION

The talents and resources of Vermont parents, schools, and child-care providers can be combined to improve the quality of what children know, what they can do, and how they relate to others. Children from age three to grade three have enormous potential that has not yet been realized.

We are not speaking here of the forced learning of narrow academic skills or the mindless acceleration of intellectual development. The goal is to foster a healthy cognitive and social development that will lead to improved performance throughout each child's school career. The intention is to guarantee a fulfilling life experience in these years for every Vermonter, with the expectation that later learning can be built more strongly on a firm foundation.

Equal opportunity is an important part of this initiative. While many families and communities in the state provide a wealth of educational activities for young people, many others do not. Some children grow up in environments which stimulate development and learning; others arrive at the schoolhouse door with only minimal preparation. We have an obligation in Vermont to reduce this inequity. We must do all we can to see that each child's chances to learn are equal. We must encourage more of our families and communities to provide for the full development and success of all of their children.

This handbook describes some of the ways that families, schools, and child-care centers can work together to achieve these goals. The initiative is aimed at all children; Vermonters should increase their expectations for all learners, by planning carefully for instruction and developmental experience, and by providing the extra resources that are necessary in homes, child-care centers, and schools. If each young

Vermonter becomes as competent as possible, then the performance of all students will be markedly improved.

Vermont has chosen the span from age three to grade three for several reasons. This is the time of an important developmental spurt. Piaget calls it the onset of concrete-operational thought; others have called it the "five-to-seven shift". During this growth period, language develops geometrically; social competence, especially with peers, grows by leaps and bounds; and natural curiosity about the world is at its crest. The child is ripe for thinking and developing.

It's also the time when extra attention and additional resources can have the most remarkable and lasting effect. Recent research results, collected after 20 years of study, show that high-quality, developmental experiences during the age three to grade three years have a positive effect that lasts well into high school. Children whose environment is enriched during these years end up needing less special education in school, are most likely to hold a steady job as adults and less likely to become juvenile delinquents. Follow-up studies in Vermont and other states have proven the power of quality early education.

Right now in Vermont, we're not devoting to this age span its fair share of public resources. While we spend more than $2600 per pupil for a year of school in grades 10-12, we spend less than $1900 for a year of kindergarten, first, second or third grade. And the resources devoted to three and four year olds are less even than that. It would not be unfair to build up the amount spent in the early years, to at least equal that which is spent later.

On top of these expenditures in the later years, we spend in Vermont almost $30 million each year for special and compensatory education. Much of this is for services to children who experience a less-than-adequate education in the early years, and who need special, expensive remedial help later. A fully developmental experience from age three to grade three, for every child, could serve to reduce the need for remedial help.

GUIDING PRINCIPLES

Vermont's Early Education Initiative calls for higher expectations, improved environments, and increased performance on the part of all of our young people. Its goals are set above the norm. It looks for substantial and qualitative changes in the way we educate our children from age three to grade three.

As we work toward these changes and these increases, we must adhere to certain principles of child development and quality-of-life that are at the core of Vermont's educational philosophy. The compo-

nents of this initiative are built upon a respect for the role of the family and of the child's developmental needs that must not be violated. We do not propose achievement-at-any-cost; gains in student performance should be built only through means and methods that adhere to these principles.

The first and foremost among the guiding principles of this Initiative is the central role of parents and of the family in a child's education. Recent research, centuries of tradition, and common sense all point to the parents as the chief determinant of a child's performance, in school or elsewhere. All of the improvements to early education that are suggested in this handbook require a more active role to be played by parents in the education of their children.

Parents help to form a child's basic attitude toward school and education in general. This attitude is built early; a positive feeling about learning begins during infancy and toddlerhood and develops through the preschool years. Parents can help their children develop a positive attitude by their own example and by the things they talk about with their children. When a child enters kindergarten and the primary grades, she or he will have that positive attitude as a factor working toward school success. Beyond this, the parent's involvement in the school is important to early learning. Knowing what the curriculum is, communicating regularly with the teacher, following up at home with skills learned in school: all are essential tasks for the parent of a primary-school child.

The parent's role is more direct and more central during ages three and four, when education is informal and not fixed in time and place. The parents who turn these pre-school years into a myriad of opportunities for learning will be performing a life-long benefit to their child. Many Vermont parents choose a setting outside of the home for child care and education during these years. They must ensure that these settings will stimulate growth and development, and work closely with the adults in charge to see that this is the case. But we must remember that most of the education of most of Vermont's 3 and 4 year olds will be done by parents, and each parent must take this role seriously.

A second principle that has guided Vermont in its efforts to improve early education is based on what we know of child development. The last 30 years has seen a resurgence of sensitive, well-thought out study of how children develop and learn during these years. Led by the work of Jean Piaget and others, and tempered with common sense, this child-development orientation is at the center of Vermont's work in early education.

A developmental perspective looks at the child as a single organism, whose parts and aspects are related to one another in a structured

whole. It recognizes that the child's transactions with the environment are the source of growth and development; that there are patterns of growth that are common to all children; and that adults and other children play an important role in shaping the nature of growth. With Piaget, we realize that the simple acceleration of development, without strong and extensive depth at each stage, is not a goal to be sought after. We also realize that certain conditions are necessary for optimum development, and that just about all Vermont youngsters could profit — some much more than others — from a richer, more active environment during the years from age three to grade three. The good development that we promote goes in both horizontal and vertical directions; and it includes all aspects of the child's being: cognitive, social, emotional, and physical.

Guiding principle number three concerns *who* is responsible for a child's education during these years. As we described earlier, the parents and the family are responsible throughout the age span, and in all areas of learning. They are the constant factor that flows behind all of the settings and mechanisms for education.

Schools and communities have a role as well. It is at the community level that changes must be made and leadership must emerge for this Initiative. Parents, child-care specialists, school board members and others interested in the welfare of young people must join hands at the town or village level to take on the task of making the changes called for in this handbook. Only if parents, child-care people, and school people share common expectations for children, and ensure that the ways they work with children are congruent and continuous, will we realize the kinds of improvements we desire. Neither the school, nor the child-care center, nor the parent can assume unilateral responsibility for young children nor for this project. All must join in it together.

COMPONENTS OF EARLY EDUCATION:

THE ROLE OF KINDERGARTEN

Kindergarten is an important part of a child's educational career. It serves as a bridge between the informal education that happens in the home or child-care center, and the formal learning that occurs in school. Every Vermont youngster deserves a year of kindergarten as part of the publicly-supported elementary education program.

Today, most of Vermont's five-year-olds participate in public kindergarten. But 22% have no such opportunity. It is the intent of this Initiative and of the Department of Education to bring public kindergarten to 100% of our children.

During the last 20 years, kindergarten has become a regular and accepted component of elementary education. All over the country, school curriculum, textbooks, and expectations for students are built upon the assumption that students will experience a year of kindergarten. Nationally published first-grade readers and math texts require students to have mastered certain basic concepts that are usually taught in kindergarten.

Vermont was once a leader in providing public kindergarten; we are now well behind the nation on this score. Our children, who will compete for jobs and achievement nationally, are at a disadvantage. Among the 22% who do not have public kindergarten available are many who cannot afford to attend private kindergartens. This makes their educational opportunity unequal, at a time in their lives when they most need a "head start." Each Vermont community without kindergarten must, as a first step toward improving early education, establish it.

Those communities that already provide kindergarten should examine the nature of their program and make some improvements. We know more about children's developmental needs and possibilities at age five than we ever have before and we should take advantage of that knowledge.

We know that children enter the kindergarten year with vastly differing levels of intellectual and social development. The activities in the classroom must therefore respond to these differences, and provide each student the opportunity to move forward. Some will be advanced, ready and able to read from books; others will still need to master basic speaking and listening skills; all will need extensive social interaction with their peers. Effective kindergartens handle these varying needs well.

Kindergarten should not be simply an earlier start on the first grade curriculum. Five year olds should not be spending considerable amounts of time at desks with workbooks and ditto sheets. Their learning and development at this age — regardless of their achievement level — must come through concrete experience and an immersion in oral language. Physical and social development should have at least as large a place as cognitive work during kindergarten, and we must remember, with Piaget and others, that *play* is the child's chief mode of learning at this age.

But random, unconsidered play does not a kindergarten make. The role of the teacher and the other adults is crucial. Activities for the children must be planned and set up so as to provide developmental experience: events that stimulate thinking, talking, and social interaction in specific ways. Adults must know the purpose of each activity, and talk to and direct the children so that each event becomes an opportunity for learning. And the kindergarten classroom environment must reflect the children's needs for work with manipulable concrete objects and small-group social interaction.

Kindergarten is provided in Vermont in a variety of ways. In many communities, the traditional half-day session in a school classroom is the mode of delivery. Other towns have chosen to implement a full-day kindergarten program. While most keep kindergarteners in a separate classroom, several have found it valuable to integrate the 5-year olds into a K-1 or primary-unit form of organization. Weybridge, Charlotte, Sheffield-Wheelock, and several other districts have adopted such a system. A high-quality program can be delivered in any of these varied settings.

Many of the Vermont communities without kindergarten are so small, or their schools so crowded, that the traditional kindergarten classroom would be difficult to establish. In recent years, several of these towns have designed new approaches to providing kindergartens that meet all of the requirements of law but are more flexible in form. Kindergarten can be provided off-site, in a place other than the school. Or, if the number of students per grade is small, kindergarteners can be integrated into a primary unit, using already existing staff and facilities. The State Department of Education is prepared to assist local school officials to design and carry out such alternative approaches.

Kindergarten is an important year for learning. It is essential to the success of Vermont's Early Education Initiative.

ENRICHING THE PRIMARY CURRICULUM

The curriculum in grades one, two, and three should shift its emphasis so that it focuses on three concepts: higher expectations; concept learning; and an orientation to child development.

First and foremost, teachers and parents must expect more of children in the primary years. Not more mastery of narrow academic skills, but an increased understanding of the concepts that are important to further learning. As the readiness skills of children improve as a result of careful attention in the preschool years, we can expect better performance in the primary grades. Less time will need to be spent at this level in remedial or compensatory work; more resources can be devoted to in-depth, small-group work in all areas of study. The goals that are set forth in the areas that follow cannot be reached unless all of us — parents, teachers, school officials — have higher expectations for all children.

Second, the primary curriculum must move away from an emphasis on the rote learning of a small set of academic skills, and toward a deep mastery of essential concepts in several fields. From work in child development research, and from successful practices in many Vermont schools, we know that there are certain concepts and attitudes that are essential to a child's development and necessary to proper learning in the future. In mathematics, for instance, more attention and time needs to be spent developing a strong foundation in the concepts of classification, measurement, logic, and geometry. Not only is this important to understand the higher mathematics in later years; it is also more in tune with the child's developmental needs. The primary curriculum in all areas should focus on the development of deep understanding and meaning, and on the integration of all of the separate subjects into a few basic concepts.

Finally, whatever children experience in the primary curriculum should fit well with what we know of their developing minds and bodies. There is no doubt, for instance, that children at this age learn through actual experience with concrete objects, materials, and people; the school curriculum should reflect this fact. And we also know that the child's *physical* development — coordination, fine-motor, gross-motor skills, fitness — is intertwined with cognitive and social development; the school day should reflect this fact as well. Similarly, we know that using *language* intensively is essential to proper development in these years; our primary classrooms should therefore exhibit a celebration of talking, listening, reading, and writing.

We know too that a child is searching for meaning in these years — trying to make sense of what he or she sees, hears, and thinks. The

curriculum should foster this search, and take it as far and as deep as it can go. The following sections on six subject areas will serve to illustrate how this kind of developmental learning can occur in the primary grades. As you read this section, please realize that the child's mind is not separated into parts, one for math, one for science, one for the arts, and so forth. It is a *structure d'ensemble*, and integrated whole. The primary curriculum should reflect this fact as well.

Language Arts

Language is the most powerful tool that the growing child will ever have. The aim of the language arts curriculum in the primary years should be to expand and refine the sharpness of language as a tool for thinking, understanding and communicating.

The goal of instruction in these years is first to develop children who can speak their minds, who can use oral language to express their desires, their ideas, and their feelings. Speaking, and its complement listening, develop rapidly in the years before school begins, and we often assume that schools should focus less on oral language than on reading and writing. But we know from decades of child study that speaking and listening remain during the primary grades the child's chief means of communicating and reasoning. In its rush to develop reading and writing skills, the school curriculum often ignores oral language; this mistake often erodes the oral foundation on which the other language arts will rest.

This focus on oral language calls for higher expectations on the part of teachers and parents for children's speaking and listening skills. We must not be content with half-formed sentences or an inability to listen to and follow directions — all of those who work with children should consider spoken and heard language skills to be worthy of our attention and the focus of instruction in the primary grades. Without clear speaking and active listening, the child will not have the language foundations necessary to enjoyable reading and meaningful writing.

Speaking and listening are best learned and developed through real and meaningful experiences. The most efficient learning of these skills comes from repeated practice, where the child speaks about things that are important to him or her, and listens to words that express powerful and moving ideas. Interactions with adults alone are not sufficient; daily, intensive language experience with other children is absolutely essential to the learning of oral language. These kinds of experiences must take place in the school, as part of the language arts curriculum.

Many schools in Vermont have found success through a strong focus on oral language. At the Brookfield Elementary School, students

in grades one through three participate in an intensive language practice program called B.E.L.T. (Brookfield Elementary Language Training Program). A period is set aside every day when all students focus on language acquisition at the same time. Through the development of a series of themes, students are encouraged to express themselves orally through the use of complete sentences and extended vocabulary. This has improved results in reading, writing and oral communication.

A second goal of the language arts curriculum in the primary grades is to develop children who enjoy and employ reading and writing. As in oral language, the child's reading and writing should concern ideas and things that are important to him. Words with power and emotion should form the core of beginning reading and writing; children should talk about what they're reading and listen to other children's reading. It is imperative that the material they are reading at this age be meaningful to them, loaded with ideas and concepts that are worth reading and thinking about. The desired result of the primary reading and writing program should be children who read for pleasure several hours a week on their own; who can use reading to get information as they need it; who can express ideas to other children through writing; who can read another child's writing and talk about the ideas expressed.

In order to reach this goal, our schools must display a climate and an environment that provokes reading and writing. Literature for children, full of meaning and emotion, must be the subject of the books on the shelves, and there should be lots of them. Children and adults should take time to read, at school *and* at home. The hours devoted to the language arts curriculum should not be loaded with skill work and ditto papers. Instead, it should be spent in intensive reading-for-meaning, in writing-for-communication, and in combining these with oral language.

Many of our schools in Vermont have developed this kind of language arts environment. Phyllis Arata-Meyers' kindergarten classroom at the Woodstock Elementary School involves her students in reading, writing, chanting, song-writing and dramatics through the "shared book experience." Throughout the room, students can be found in clusters reciting "big books," writing plays, participating in storytelling, and even writing music and songs. Third graders at Cornwall and Williamstown write back and forth as pen pals and have the opportunity to visit each other once a year. Books, reading and writing *can* become a regular and enjoyed part of young childrens' lives.

Vermont schools will need the services of more caring adults in the primary classrooms if they are to implement these kinds of language arts programs. Students whose speaking skill is underdeveloped will

need intensive practice talking and listening with other children in a group of three or four led by an adult. Small groups of children must talk about their reading with their peers, again with adult guidance. Writing must be shared and talked about if it is to be seen as a powerful vehicle for communication. A single teacher alone with 20 or 25 or more students cannot provide enough of this kind of small group work. Volunteers, aides, parents, must be brought into our primary classrooms to assist the teachers in this kind of curriculum in the language arts.

Mathematics

Children should leave the primary grades with a strong grasp of the principles and concepts that are essential to later learning in mathematics. They should also possess the skills and the willingness to use math to solve real-world problems. Many of our schools use the first three grades to teach and practice number-computation skills, while ignoring the basic concepts and problem-solving capabilities of mathematics. This Initiative calls for a focus on the conceptual basis of mathematics, a focus that is more in tune with the child's developmental needs and which sets a sturdy foundation for later learning.

Several decades of study in child development and in the nature of the human brain have shown us that the most efficient and enjoyable

way for your children to learn the essentials of mathematics is through the manipulation of concrete objects. We have found that there are certain math concepts that each child "invents" during these years; and that this invention occurs through repeated experience with objects and materials, and later with symbols. The idea, for instance, that a number-symbol (such as "6") represents a quantity of objects (such as ⁂) is not immediately obvious to a six-year-old child; this concept must be developed through repeated interaction with groups of six objects. Similarly, the concept of place-value is best learned through the trading and manipulation of objects that represent numbers.

The other concepts essential to math must also be learned during these years. Children must learn to *classify* things by various criteria, to put them in groups according to color, size, shape, loudness, etc.; also to put things in *serial order* according to different schemes (first to last, largest to smallest, darkest to lightest, etc.). They must be introduced to the concept of *measurement*, not by memorizing inches, feet, and centimeters, but by using a variety of standards to measure distance, time, and weight. The *geometry* of the world around our children must be an important part of the math curriculum: size, shape, direction, surface, balance, etc. are all easily learned through experimentation and observation with real things.

All of us who work with children must expect a deeper understanding of these concepts in primary-grade children. We must use the opportunities that occur naturally with children — play, walks in the street, cooking and cleaning — to discuss math concepts that show up in the real world. We must expect children to practice applying these concepts until they have mastered them.

Children are by their very nature drawn to explore and learn these concepts. The school curriculum should build upon this natural curiosity and provide a set of structured experiences — many of them play-like — that will lead to deep learning of the ideas, in a variety of modes. Concepts of classification, for instance, are learned only by classifying a wide variety of items by a myriad of different schemes, over and over. Skills in measurement and estimation develop best through a similar process of repeated application.

The school must assess each child's mastery of these skills with at least as much careful attention as it pays to the mastery of addition and subtraction skills. Testing programs and teachers' work with students must focus a large proportion of their energies on the learning of essential math concepts.

The primary classroom environment should celebrate mathematics. Objects and materials for the exploration and practice with math concepts should be in evidence in the classroom. Some of these are

specially-prepared objects like Cuisenaire Rods or Attribute Blocks or scales, but most are "natural" or everyday items like water, sand, macaroni, popsicle sticks, and poker chips. Each child each day should engage in both structured and unstructured experiences with these materials as a regular part of the math curriculum.

Children should use math constantly, and display their work in the classroom. Graphs, charts, tables, measurements, and shape-drawings that represent the solving of real problems should greet the classroom visitor. Students should be asked constantly to explain and summarize their work in conceptual math, both to adults and to their peers. It is by explaining a concept to another that the child consolidates his or her understanding.

Many of these activities are best done as small-group (three or four students) projects. This calls for additional adults in the classroom to assist the teacher and to assure that *each* child can explain the concept at hand and can perform the essential manipulation of objects. It also calls for all Vermonters who work with young children to have a grasp of how these math concepts develop in children's minds.

Vermont educators can look to several of their colleagues around the state who are leaders in implementing a developmental math program. Students at the Putney Central School learn how to categorize and sort according to various attributes, using things like colored pieces of macaroni, M & M's, beads, and many other common objects. Real graphs are built on the floor from things like samples of everyone's favorite fruit. These activities, part of a carefully structured program called "Math Their Way," are enthusiastically used by teacher Wilsene Grout. She and Nancy Brooks, a teacher at the Academy School in West Brattleboro, are part of the Department's Resource Agent Program and have given many workshops throughout the state.

The result of this re-focused mathematics curriculum is a student who can classify objects in the real world by several criteria at once; who can explain the fundamentals of geometry as they occur in the world around her; who can estimate and measure objects and distances by several different means; who can explain the meaning of number symbols such as "3527", "875", and "2.5"; and who can add, subtract, and multiply numbers less than 10. They also exhibit a curious attitude toward the mathematical relationships between things, and use math to figure out problems that confront them.

These results will occur only if attention is paid to the development of the fundamental math concepts described above, if every child is assessed as to their mastery, and concrete experiences form the core of the primary math curriculum.

Science

Of all the subjects, science presents the best opportunity to match the school curriculum with the child's natural modes of learning. Young Vermonters arrive at the primary-school door with an immense curiosity about the natural and physical world, coupled with a readiness to explore and experiment. The science program should build upon these natural tendencies, turning them toward the learning of concepts that are essential to further work in the sciences.

Our schools are not making the most of this opportunity. The amount of time and energy devoted to primary-grade science has fallen in the last 20 years. Few teachers of young children harbor strong interests or training in the sciences. Scientific experimentation and exploration is not a planned and regular part of most young Vermonters' early education.

First, we need to have higher expectations for what our schools will offer in science and for what the children are able to learn. Science must change from an extra-curricular activity in the early grades to a central part of the curriculum. In fact, science offers a fine opportunity to integrate all of the subjects — math, language, social development — into a single enterprise for the children. And we must take seriously the science skills that children learn in these grades. They must be introduced, practiced, and tested just as often and just as closely as skills in math or reading. There is a body of science knowledge — a set of skills and concepts — that each student should master before going on to the middle grades.

Second, our teaching must focus on meaning in science, on ideas and conclusions that the children can invent for themselves and that are important for them. The central concepts of science, such as cause and effect, ecological cycles, energy, predictability, time and motion, must all be introduced in their most elementary forms in the early grades. It turns out that these very concepts are the ones that are most on the minds of 6, 7, and 8 year olds. They are, at this stage in their mental development, collecting a store of knowledge based on their concrete experiences with the world, on what they touch, feel, see, and manipulate. The school program should carefully channel and nurture this building of knowledge, providing the child with materials, settings, and assignments that will cause new and important concepts to be discovered.

The heightened awareness of science is well within the reach of Vermont schools. In Lincoln, for example, the primary grade students are involved in a variety of activities related to the weather. Data are collected and maintained by the students on the temperature, cloud cover and rainfall, including frequent checks on the acidity of the

rainfall by using simple pH indicators. Students practice on "mystery liquids" to improve their skills in testing and reasoning. These data are then used to produce graphs, charts and pictures, and later to predict the weather, develop inferences on streamflow, predict the incidence of colds among students, estimate school attendance, and discuss other weather-related phenomena. Measurement, physics, biology, and social issues are all involved in this science unit at Lincoln.

A third component of the enriched science curriculum concerns the learning of skills. Intelligence grows only from the application of skills to the student's environment. Science instruction should develop the skills of close observation, careful measurement, prediction, making inferences, and drawing conclusions. It is important to remember that these can be developed only through practice with real things in concrete situations. Students must actually observe an experiment, or actively measure an object; their inferring and conclusion-making must be based on immediate experience. And the skills must be practiced over and over, with a wide variety of materials, in many different contexts. They cannot be taught once and mastered.

The subjects for science study need not be complex or esoteric at this age. The natural world, the weather, common liquids and solids, animals and plants, and the children themselves are the best content for primary science. But the work that the students do on these topics must be carefully planned out and professionally monitored. Scientific exploration is very close to play for the young child; the teacher must meld the methods and spirit of play with the careful intellectuality of science.

Regular experiences in the early years, all aimed toward skill development, are necessary preparation for later coursework in science. Many students today lose their natural interest in science during the elementary years, in large measure because of the slim treatment of this subject in the schools. Proper preparation for our children requires regular, planned and structured science study. This course of study, properly carried out, serves as well to nurture the developmental needs of this age.

Students at the Stowe Elementary School presently benefit from an enriched science program. In the primary grade program, *Science, A Process Approach* (SAPA) provides regular, structured science lessons. Particular emphasis is placed on the development of basic science skills, with students being given many opportunities to perform the same sorts of actions as scientists do. Skills of observation, measuring, using space-time relationships, classifying, inferring and predicting provide the base for more complicated and integrated skills of controlling variables, interpreting data, hypothesizing and experimenting, as students improve their thinking abilities.

Each school must offer to its early-graders a place and a set of materials for the learning of science. Science cannot be learned at a desk from a textbook, especially at this age. Objects, equipment, work areas, small-group stations, tools for measuring and experimenting should be available to every Vermonter. The Science Materials Checklist in the Appendix to this handbook outlines some of the more necessary types of materials for primary science.

Accompanying these things must be a teaching staff that is interested in and prepared to teach science. Many schools will find it wise to develop one of the primary teachers into a specialist in science, who can take some leadership and responsibility for the science program, and assist the other teachers to implement it. Training for teachers should recognize that children at this age do not STUDY science; they DO it.

The Arts

Humans have for centuries used the arts to express their ideas and feelings and to communicate culture to the next generation. Music, drawing, dance, theatre and painting are among the most powerful means of presenting ideas and influencing thought. The arts combine intellectual exercise and appeal with creative and intuitive methods. As such, they belong in the primary curriculum.

Both the expressive and receptive functions of the arts must be practiced by our young children. Children should learn to communicate ideas and feelings through their movement, their drawing, their singing, and their painting. To truly communicate, their arts products must be displayed or performed for others, and reacted to by an audience.

We should also impress children with the arts: show and explain paintings to them; take them to live performances; listen and respond to music with them. This must all be a carefully planned and structured part of the curriculum for every child in the first three grades.

There are certain essential principles in the arts — basic skills — that children need to master in these years. The role of color; the elements of design; the types of art forms; all can and should be mastered by each student.

The arts have some spin-off benefits as well. They can help enliven other subjects, especially history and literature. They provide opportunities for meaningful practice of speaking, listening, and writing skills. Through the arts, geometric and spatial concepts important to science and math can be presented and manipulated. In fact, music was considered by the Greeks to be a branch of mathematics!

Vermont is blessed with a variety of resources to help us teach the arts to young children. Museums, working artists, and performers who are glad to come to school, make it easy for communities to establish a strong and vital arts program in the school.

The arts are not an extra, nor should they be seen as a recreational pursuit in school. They should be included for their intellectual and communicative content, and be pursued with the same energy and planning that we put behind reading and math.

Social Studies

Social studies instruction is essential to the development of the reasoning and social skills necessary for children to make sense of the world around them and to participate as a member of society. An early

foundation in applying problem-solving and critical thinking skills to social issues is necessary for later understanding the principles of democratic government and appreciating the lessons of history.

According to a recent study by the National Science Foundation, social studies instruction time has fallen to 20 minutes per day in the primary grades. At the same time, the entire primary curriculum has, in many schools, lost its ability to integrate learning among the various subjects. Social studies — which can use all disciplines in its lessons — can help develop an integrated approach that benefits the total experience of the child.

Instruction in social studies is necessary for children to develop skills that can be applied to the complex world they will face when they grow up. Skills in reading, interpreting maps and globes, understanding time and chronology, problem-solving and critical thinking, are all taught best by the social studies.

In addition, the development of social skills in young children is necessary for later participation in society. These skills help young children learn who they are, what they can do, and how they can relate to others by communicating, sharing, and cooperating.

These skills are best taught by identifying social studies concepts and relating them to the natural interests of the child. For example, at many Vermont schools, children are exposed to the concept of *change* at an early age — a new building is erected on what was once a pasture; shoes that once fit don't fit anymore; or a playmate moves away and emotional adjustments must be reconciled. Instruction focuses on such situations that children meet in the real world, with encouragement and questions that help them investigate the concept. *Change* is but one concept that is important for a child's understanding.

Asking questions is important in social studies. Children's study of change, for instance, can be furthered as the teacher uses *questions* appropriate to the circumstances and the child's level of development:

— Is something different?
— What is changing?
— What caused the change?
— How much do we pay for this change?
— Is the change worth the cost?

In one first grade classroom, children learned about change in their town by listening to changes in sounds; describing how the town is like or unlike other towns they know; identifying the causes of changes in the town; evaluating the good and/or bad effect on the town; and estimating the speed of the change. Teachers used a ten minute field trip, a taping of sounds, an examination of the differences and similarities of two towns in pictures, and a project on changes in various objects students brought to class.

Social studies should be taught with an emphasis on group activity.

The content should be designed to present child-appropriate issues, drawn from local, national, and international history and current events. Students should actively participate in social studies on a regular basis with a defined curriculum that is coordinated from one grade level to another. Students should be presented with activities that encourage the discussion of history and current events in small groups of three or four children. Teachers should help students to understand various points of view on an issue, and to state reasons for their decisions. Social studies should offer opportunities for young children to put themselves in someone else's shoes — especially when that someone else is from a different time, place, or culture. Social studies should be the foundation for preparing Vermont's future citizens for participation in a world that demands the ability to solve problems in a social context.

The social studies demand and offer creative teaching and the bringing together of many subject areas. They can serve as a wonderful opportunity for the teacher in the early grades to make active and meaningful learning a part of each day's school work. Social studies can also serve as the link between the cognitive, the social, and the emotional aspects of the child — all three can be united in a single lesson. This initiative has no narrow prescriptions for the content or scope of the social studies; but it relies on them to pull the curriculum together.

Health

The study of health gives students throughout their development a unique opportunity to apply many of the things they learn to their own behavior. The health education program introduces the concepts and skills that enable young people to understand and maintain healthy bodies and healthy minds.

We need to be more aware of the learning opportunities in the early grades. Much health education can take place by explaining to children *why* we do certain things, *what* that means for their health, and *how* they can learn them. We can use time purposefully by turning waiting time and recess into fitness breaks; snack time can become nutrition education; and taking turns in class activities can help students learn appropriate social behavior.

To prepare young people for a lifetime of healthy behavior, the health education program consists of three equally important parts:

The first part contains *information* about the children themselves: what they are; how they function, how they feel about themselves and about others. There is also information about family life, nutrition, fitness, safety and the numerous health hazards to be found in our

society. Students need accurate information about the consequences of "misuse" and "abuse" in relation to their bodies and to their minds.

The second part of the health education program examines *attitudes and beliefs* about health behavior. How and why do people do certain things, and how do we feel about them? What are current health-related issues and why are they issues? Why do people feel differently about themselves, their families, the food they eat and the things they do? Children should understand and accept the fact that they are unique individuals who have many things in common with their peers.

The third part of the health curriculum provides the children with the skills necessary to apply the information and attitudes they've learned to an understanding of the *consequences of their own health behavior*. Children can learn that plenty of sleep and a morning meal, for instance, provide for feeling good and learning better without being exhausted before lunch time.

Health education should take place everywhere in the school: the classrooms, the cafeteria, the gymnasium, the playground. If the program is planned properly, and the concepts understood by parents, teachers and staff, ther health education can become the application or the natural extension of everything children learn, to their own health. Children of all ages should have the opportunity to understand their own growth and development and should be given the skills to practice health decisions.

The results of this program are beneficial to the student as well as to society as a whole. As there is no separation of the child's cognitive and affective aspects, so there is no separation, in this initiative, of the physical and mental needs of the child. Health education in the early grades helps to strengthen this connection.

ORGANIZING SCHOOLS FOR CHILD DEVELOPMENT

We have learned much about child development. This knowledge has not yet completely penetrated our public schools in Vermont.

Schools should be organized in such a way as to promote child development and allow the curriculum described above to be carried on.

Schools should look carefully at several aspects of their organization. Are their *expectations* for children consistently high and coordinated with parents? Is there firm and visible *leadership* for the school's program? Is the school *environment* conducive to learning — does it include necessary materials and equipment? Are there enough *caring adults* involved with students' learning? Is the child's progress based on *flexible learning patterns* or on the dictates of the calendar? All of these must be considered as the community works to improve its school.

High Expectations

High expectations are vital. Schools must receive children with the attitude that all children can learn all of the elements of the primary curriculum. Some will need more time to do it; others will need different teaching methods; but none are incapable of learning deeply and learning well. All of the teachers and school staff must share this attitude, and so must the parents and the school board. Children will rise to meet higher expectations, so long as they are based on a rational understanding of child development. Children are capable, at this age, of learning and understanding much more than we think they can.

Our expectations, however, cannot be unreasonable, nor should they be out of sync with what we know of child development. High expectations for children of this age does *not* mean pressure to complete trivial paper and pencil tasks in short periods of time. It *does* mean expecting every child to learn to speak clearly, to explain the concepts he's learning, and to work at a task until it's complete. And the level of our expectations should not vary according to the child's family background or income level or future life plans. We must expect the best of everyone.

We will not, however, be able to maintain these high expectations without changes in school organization. This initiative calls for stronger school leadership, a richer environment in the classroom, more caring adults in the school, and a more flexible system for students' progress through the curriculum. These are all necessary to meeting the high standards we set for our children.

School Leadership

Effective schools, in Vermont and elsewhere, have strong principals

who set the tone for the school and lead the staff on to improved learning. It is the principal who sees to it that curriculum programs are implemented, who prods the staff on to more effective teaching, who makes explicit to all the goals and purposes of the school. The principal takes responsibility for the quality of its program and the success of its graduates.

For schools to make the improvements called for in this initiative, the principal must be clearly identified, comfortably saddled, and freed from other duties so he or she can act as leader. Even very small schools with a handful of teachers will profit from the development of clear leadership within the ranks.

The list of an effective principal's duties is almost without end. But a few are especially important to the Early Education Initiative. The principal . . .

- supervises the instructional program in all subject areas, ensuring that it is implemented in letter and in spirit;
- nurtures, develops, and evaluates the school staff;
- coordinates the curriculum between and among teachers, and with parents and receiving schools;
- oversees the revision of the school's curriculum as it becomes necessary;
- communicates the school's goals and purposes to students, parents, the board, and the public;
- ensures an orderly, clean, safe, and attractive environment;
- sees to it that the staff has the material and moral support it needs to do its job.

Without these duties being effectively accomplished, no school can implement the improvements called for in the initiative. Smaller schools, and those organized as K-12 schools especially, must ensure that there is strong leadership for the program in the early grades. In some cases, this suggests the appointment of a principal where none exists, or the naming of a "primary lead teacher", or the releasing of the principal from other duties so that these can be accomplished. In all cases, the initiative calls for parents, local boards and teachers to allow the principal to exercise this responsibility and actively to lead.

Environment and Equipment

The proper environment for the education of young children consists of much more than a desk with textbooks. All of the curriculum activities described above call for equipment and materials and space that is not now a part of the environment of every Vermont school.

The science program called for by this initiative is contingent upon scales, microscopes, natural objects, weights and measures, and trips

to the natural world being a part of every child's experience. It also needs a proper space for exploration and experimentation in the classroom. Textbook science alone is not in keeping with the developmental needs of primary-grade students.

In math, we know that essential concepts can be developed only through the manipulation of concrete objects. This explains the need for blocks, cubes, shapes, measures, collections of objects, containers, and workspace as part of each classroom environment. Structured materials such as attribute blocks and cuisenaire rods are necessary, as are natural materials such as buttons, shells, macaroni, and popsicle sticks. Several math curricula depend on these kinds of materials for everyday use by pupils.

The language arts require *tools* and *resources* in the classroom. Tools for writing, acting, and public speaking must be readily available and regularly used by students. Resources for independent reading and for finding information must include a huge collection of children's literature and reference books that are easy for students to find and use. Space and materials for producing and displaying written products must also be part of the environment. Children's language should greet the classroom visitor from the walls and bookshelves as well as from their mouths and minds.

The arts, physical education, and the social studies programs call for similar equipment and materials. These things are not extras or enhancements; they are the chief mode of teaching the basic concepts in the field. The "Equipment and Materials Checklist" in the Appendix to this *Handbook* will help you to see which of the required items are present in the classrooms of your school.

A special note concerns microcomputers in the primary classroom. They are neither a fad nor a luxury. If Vermonters are to control and understand computer technology, they must learn to interact with it as soon as they are able. Very young children can learn to use computers, to program them, to learn about them and learn from them. Properly utilized, the computer is a creative tool for both teacher and student. It can actually foster social interaction and promote creative thinking, but only if it is used well. The Department of Education distributes a booklet, *Computer Considerations for Vermont Schools*, that can help schools and parents determine the best use of computers in their schools.

Some aspects of the school environment cannot be put on a checklist. The school should be a bright and inviting place. Positive relations between staff and students and among students are essential to good learning. Trust and enjoyment should overshadow fear and boredom in the school. While these aspects are not as measureable as others, they are really the most important environmental considerations.

Adults and Small Groups

The teacher alone in the classroom cannot be expected to carry forth all of the changes and improvements called for by this Initiative. In order to provide the intensified curriculum described above, and to follow up regularly on each pupil's progress, and at the same time to provide a warm and personal environment, we will need to put more caring adults to work in our primary classrooms.

These extra adults are not simply aides or clerical assistants. Their involvement is essential to the functioning of the curriculum. In the language arts they listen to the oral reading of small groups of children; lead an intense discussion of an interesting story; "conference" with beginning writers; organize a dramatic presentation by a handful of children. In mathematics, the adult works with three or four students who need further work with Cuisenaire rods to build their understanding of certain concepts; or conducts a review session on

addition; or leads a group in an exercise to measure and map the school building. The science "laboratory" is another site that calls for the attention of a caring adult, to set up experiments, oversee students' observations, ask appropriate challenging questions, and lead small groups on field investigations. In social studies, the arts, and health, this Initiative calls for extensive small-group work that can only be carried out with the help of caring adults in the classroom.

Beyond delivering the curriculum in this way, these adults serve other important purposes as well. They can double or triple the amount of "feedback" and monitoring that each child receives, thus making both school and pupil more aware of progress. They provide another adult for each child to interact with, another personality, another caring touch or suspicious eye in the classroom. And, they provide another avenue for the community to make its heightened expectations felt among the children.

Many schools in Vermont already make good use of adults in the classrooms. Some employ trained teacher aides, paraprofessionals who are a regular, budgeted part of the school's program. Others utilize an impressive network of parent volunteers, who are carefully integrated into the school day through long-term planning and serious committment. Senior citizens, acting alone or as part of organized groups, serve many of our schools in all of the ways listed above. Vermont is blessed with educated, caring adults who are able and willing to help us improve the education of our youngest citizens.

But more adults cannot simply be lined up and placed in the classroom. The role and assignment of each must be made clear to everyone — teachers, students, parents, and the adult him (or her) self. And this adult must learn and share the purpose and mission of the school — become a part of the staff and communicate the school's expectations to the children. Finally, they must understand fully the part of the curriculum that they will work on with students. All of this calls for special training for these adults, under the direction of the school principal, and for continued follow-up and maintenance of the system for adult involvement.

Flextime

Years of research and generations of common sense have taught us that a child's growth does not follow an orderly path dictated by the calendar. Young people develop their capabilities at different rates and in different ways. And yet we organize our schools as if the calendar were the sole determinant of a child's ability.

The research of Benjamin Bloom and others in recent years has

found that just about all children — 95% to 98% — can, indeed, learn all of the things taught in the early years. But they cannot learn it all in the length of time allowed. Some, in fact, learn it in a little as two years' time; others take as long as four years. Given enough time, and under the proper nurturing environment, we can reasonably expect *all* of our pupils to master the curriculum set forth in this handbook.

Bloom's research is complemented by support from another quarter — Piaget's decades of research and observations of children's development. Piaget is often misunderstood by Americans to posit a series of developmental stages that are fixed by the child's age. In fact, this is not true. Piaget pointed out a sequence of developmental stages that all children go through; but he went out of his way to observe that the rate of development and the age at which children passed through the stages vary considerably. Some children develop "concrete-operational thought" in Piaget's terms, as early as age 5; others do not arrive until 9 or 10. Both of these are well within normal bounds.

Today, in most Vermont schools, entry to an exit from the primary curriculum is based almost exclusively on the child's calendar age. Neither developmental level nor achievement is a major factor in this determination. This initiative calls for a more flexible approach, allowing children to begin the primary-grade curriculum when they are fully ready for it, to take as much time as they need to work their way through it, and to go on to the higher grades when they have mastered all of its elements. This approach precludes calendar age as the chief method of organizing instruction.

There are several ways to arrange this "flextime": ungraded "primary units"; continuous progress curricula; transition classes; family grouping; all of which are used in Vermont today. The method chosen should depend on the size of the school and the nature of the teaching staff.

Flextime is intended for *all* students, not just for the small minority at either end of the normal curve. Today children enter kindergarten or first grade with widely varying skill levels. In fact, the variation in performance at some Vermont schools is remarkable. Flextime allows the school to compensate for these different entry-levels and rates of learning. It permits fast learners to move ahead without discomfort or penalty, while allowing others the time and attention they need to fully master the essential concepts of the early curriculum. All of this must be done without the cumbersome and inefficient system of "skipping grades" or "staying back".

Conversations with Vermont teachers of kindergarten and first grade confirm the variance in entry-level skills and the need, on the part of many Vermont youngsters, for more time to learn the basics.

General research on the long-term effects of early intervention show that an extra year of schooling at the beginning is much less expensive (and more effective) than remedial help later. But research on "staying back" shows that simply repeating a grade causes more harm than good. A more flexible and systematic approach is necessary.

Adoption of a flextime system would guarantee that all children have the proper amount of time to master the objectives of the primary curriculum. It would increase the proportion of fourth graders that is ready to tackle material beyond the basic skills. Primary teachers and parents would have more educational options available for children who are ahead or behind their agemates. Flextime would also encourage alternate grouping, learning, and staffing strategies in the early years.

DEVELOPMENTAL CARE FOR THREE AND FOUR YEAR OLDS

Today, most of Vermont's three and four year olds are not in school. This Initiative does not propose that they climb onto the yellow buses and spend their days in the classroom. Rather, it proposes that every young Vermonter of three or four years, wherever he or she may spend the day, be nurtured by a rich developmental environment.

What is the nature of that environment? What is important to the lives and the growth of three and four year olds?

First of all, they must be cared for by knowledgeable and interested adults who are committed to each child's growth. A child's life at this age cannot be entrusted to other children or to adults who are not concerned about education. Certainly parents are the best caregivers and educators at this age. But only a minority of Vermont's 3's and 4's are cared for at home by their parent(s) all day. Most are cared for by babysitters or relatives; many attend day-care centers and licensed day-care homes. What's important is not the location of these children, but the nature of that environment and the competence of the adult caregiver. It is the goal of this Initiative to bring all of these care givers into the community's efforts in early education, to increase their competence, and to have them contribute to each child's education.

Another aspect of the developmental environment for 3's and 4's is its focus on language. Every three and four year old should be in an environment where they can use language, where they can talk with their peers and with adults, where they can listen to language, and where they can express their ideas with words. These years witness an incredible growth in vocabulary and language use patterns that is best nurtured by constant practice — talking, listening and responding — in natural situations. In the developmental environment, the child is expected to talk about his feelings and to reflect on events that are going on around him. She is asked questions about herself, about other people, about objects and events. She listens to other children and responds to their talk. He hears stories read and sees them acted out. The time and the place are structured so as to set up small-group situations that elicit natural language. The adults-in-charge lead the children through activities that call forth words and sentences. This language-intensive environment can be provided in any of the settings that 3's and 4's are in; it does not rely on special educational materials or direct instruction techniques.

Words, however, are not enough. Children at this age need also to interact with the physical and logical world. The environment must provide opportunities for them to manipulate objects and things and materials, to see how they fit together, to discover patterns, to observe color, size, texture and shape. They need to see the consequences of their actions on the world of concrete objects. It is through this kind of activity that the child's basic mental structures are built, the essential concepts of mathematics and science are laid, and the senses are trained. The child's activity here is natural, what we would call play. But the caring adult can encourage this play, set it up, and turn it in to an opportunity for learning. So can the presence of other children who talk about what's happening and show new ways of manipulating the materials. And these are not special, expensive materials. They are things that have shape, size, color, weight, texture, form, hardness and softness. They are already in the kitchen, out in the dooryard, or in the block corner. We know that children with a rich experience with concrete objects will develop a firmer foundation for later thinking and learning.

Other people, while not objects to be manipulated, are nonetheless an important part of the young child's environment that he or she must interact with. Social interaction is absolutely essential for development, even for cognitive development. Language patterns, for instance, are learned not so much from imitating adults as from trying out phrases on peers. Math concepts are often crystallized when the child has to explain an ordering of objects to another child. And social development — the ability to put yourself in another person's shoes,

to see different points of view, to understand your own and others' feelings — can only happen through daily practice in situations with other people. The caring adult will often structure situations so that children interact with each other in pairs, small groups, and large groups, then go on to talk with children about their behavior. This too is essential for optimum growth in the early years.

Finally, we must recognize that our culture has much to teach the three and four year old. There are ideas from our literature and our classic stories that are intended for the preschooler's mind. There are concepts and ways of thinking that we must communicate to young people through the stories we tell them and the lives we model for them and the art that we present to them. A full early education includes these literary and cultural elements, but it does this through good books, traditional tales, expressive works of art, and serious conversation. The developmental environment must be full of these things, and make them a regular part of the day's activities for all young Vermonters. In doing this, we must not ignore the culture of Vermont itself: the ways and the myths and the beliefs that have shaped us and our society.

The developmental environment that we have described can be set up in any of the places that three and four year olds are in. This Initiative does not call for children of this age to be moved to places that already provide this kind of activity; rather, it seeks to improve the environments that we already have — to make each home or center or school reflective of all these elements. And the environment we describe here is not "formal education." It does not require desks or textbooks or drills or specialized technical staff. Instead, it relies on the natural developmental growth of children and builds on the competence of caring adults. With a rich underpinning developed by every Vermonter in the preschool years we can look forward to a brighter and progressive future.

Many Vermont communities have already found ways to make this developmental environment a reality. In the Northeast Kingdom, a "Parent to Parent" project relies on Home Visitors — themselves parents — to meet with other parents in their homes to help them improve educational opportunities for children. Parents learn new ways to do language development, discipline, human relations, and contact with the world outside the family.

In Barre Town, parents and the school have acted in concert to make developmental opportunities available to all children in the district. A parent cooperative day care has been set up in the school building; an active parents' group has initiated several activity and curriculum projects; an early education program for children from 3

to 5 is funded with federal Chapter 1 funds.

In several towns in Vermont, the local private child care center has worked closely with the school to coordinate children's learning and to ensure a continuous and developmental environment. Regular meetings of the staff of both institutions, and a careful follow through with each child, have strengthened the educational experience for many young Vermonters.

Even in rural areas, where families with young children are spread across the hills and valleys, Vermonters have found ways to improve the environment for three and four year olds, while at the same time increasing the competence of the adults who care for them. The Caledonia Rural Early Education Project (CREEP), in the area around Danville, has helped many parents to become educators in the home, beginning with a knowledge of child development and growing into success in school.

School districts can also play a role in the education of three and four year olds. There are scores of Early Essential Education and Preschool Compensatory Education Programs all over the state, operated by school districts, and in line with the developmental principles described above. Some districts such as Wilmington, go further, and assign a kindergarten teacher to work part-time with the parents of three and four year olds in the community, provide workshops and learning material for parents of preschoolers, and plan to enrich the arts and science curriculum in the early grades.

Essential to any work with threes and fours, and fives as well, is a careful developmental assessment of each child. The science (and the art) of figuring out each child's progress at this age has become more sophisticated during the past decade. Many parents and teachers and child care workers have learned to use such assessment instruments as the DIAL or the Brigance, or have designed assessments based on the work of Piaget or Gesell. Regardless of the particular theory or test that is used, the concept of developmental assessment is important, for all children, not just for those with handicaps. Only through careful attention to and understanding of each child's developmental progress can the educational program be properly designed.

At the Union 36 school that serves Corinth and Topsham, the staff uses the Gesell screening system with all entering students. They use the results as part of their decision on placing the child in school, so that each child's development level matches his educational program. Parents are involved in the screening and placement process.

There is no single formula for establishing a developmental environment for all of the three and four year olds in your community. There are instead several paths toward this goal, each calling for close cooperation between parents, school people, and child care workers.

The last section of this *Handbook* makes some suggestions for organizing this cooperation in your community; but you might find it more valuable to contact some of the people in the communities described above, who have already tackled some of the issues.

THE ROLE OF PARENTS

— DeeDee Jameson

Parents play the most significant role in the development of their children. Parents direct their journey — from highly dependent newborn babies to autonomous adults, competent to care for themselves and responsible to society. Parents are the people who must help a child develop a sense of self-worth. They do this by creating a safe and supportive environment which fosters trust and respects the child's need to feel autonomous, develop initiative, become competent, and establish a sense of "this is who I am."

Parents deserve support in this very important work. During the early childhood years, the support comes from family members and friends, from caregivers and teachers. Together, they form a community of caring adults. Together, they can pool their energy and other resources to optimize the developmental potential of the children in their care.

Assuming responsibility for three-and-four-year old children is at once demanding and very rewarding. What are the things parents can do? How can they find the community of support they want in order to enrich the developmental environment for their children?

Parents can inform themselves about child development by reading, taking courses or workshops, and participating in discussion groups. They can develop good "noticing" skills and, using their knowledge of child development, enter their child's world. They can know and understand their child's ability levels; be aware of what the next step in development will probably be; and be sensitive to their child's unique needs and interests. Parents can use personal and community resources to create a learning environment that promotes a sense of self-worth through the achievement of competence in appropriate developmental areas.

During these early years, it is important for parents to reach out to other people. They can become involved in already existing programs, or they can work to create programs where there is a need to do so. Examples of some effective programs are detailed in the foregoing section on "Developmental Care for 3 and 4 year olds."

By participating in such programs, parents can provide their child with the peers she or he needs in order to develop social skills and to become less egocentric, paving the way for more sophisticated cognitive skills later on. They can provide the child with opportunities to relate to and learn to trust adults other than family members and close friends. They can provide access to learning materials and experiences that are often too expensive or too difficult to provide in the home setting. Parents can provide themselves with peers, gaining access to mutual support and many valuable resources. All of this can, and does, happen wherever and whenever child-oriented adults gather together.

As the family develops, its members grow into ever-expanding worlds. The preschooler becomes a school-age child and the family moves into a setting where education is more "fixed in time and place." Parents must remember that they play the most significant role in the development of their child over time. The school, whether public or private, is an important resource and support system for parents. Trained and experienced professionals are there to help the child learn the knowledge and develop the skills which she or he will need in order to become an autonomous adult, competent to care for self and responsible to society.

Parents must not abdicate their responsibility at this point. Remembering that the school's staff is there to help by contributing their expertise, parents can continue their own active role by encouraging and supporting the school in its efforts to organize its programs for child development. Parents can visit the school, get to know the

teachers, volunteer wherever assistance is needed, and attend school board meetings. This can be done even before the family makes its transition into the school system.

By listening responsively, observing what is happening, sharing thoughts and feelings clearly, and lending support, parents can help to create an environment of trust and cooperation. Rather than the "separate-but-equal" concept, home and school, parents and teachers can work *together* to create a reality of mutual respect and cooperation — a community of caring adults.

As the child moves into kindergarten and through the primary grades, parents should keep in mind that each year in the child's development has its own validity. Clearly, an optimal developmental environment will prepare a child for each ensuing year. But when parents support rather than pressure teachers during these early childhood years, the need to "get the child ready for next year" is minimized and the child is more free to learn.

Parents can support teachers in the following ways:

- Offer to work with the children in whatever ways teachers request. This may mean working in a classroom other than your child's. It probably will mean negotiating with employers in order to have personal time to do this. It will mean familiarizing yourselves with the goals and objectives, the teaching strategies, and the curriculum materials. When driving for a field trip, for example, ask, "Why are we taking this trip? How can I prepare myself to make the trip better for the children to whom I am responsible?"
- Offer to help enrich the learning environment. Using community resources, parents can make or otherwise add to the learning materials and equipment. They can tap into the community's human resources. In one Vermont town, for example, a parent arranged for a "musician of the week" to visit the children weekly. They learned about different instruments and about music. In addition, they learned how sound is made as they touched the instruments and felt the vibrations; they developed new vocabulary — vibration, resonate, pluck, strum, blow, strike, beat, rhythm, melody, harmony; they learned that we can "read" music and that there are symbols other than letters, words, and numerals; they developed a new dimension in their appreciation and understanding of counting and measuring; they learned that men and women make music both for a living and for pleasure; and they learned that they, alone or with others, could not only enjoy, but create music. A parent helped this to happen!
- Be a good ambassador. Let people know about all of the good things that are happening at school. Interpret and clarify what is happening when people ask questions or make statements that indicate that they do not understand. A neighbor who does not understand might ask, for example, "What good is that kindergarten, any-

way? I don't see that the children are learning how to read." Help her or him to understand what *is* happening that will enable each child to learn to read when the time is right for her or for him. Help your own child by going to her or his teacher, first, if you have your own concerns. It helps your child feel safe when the adults in her or his world respect one another.

By recognizing the significance of their roles and realizing that parenting may be the most important work they will ever do, parents will play a very important part in the initiative to improve early childhood education in Vermont.

STEPS FOR COMMUNITY ACTION

Early Education will succeed only if all segments of the community take on the initiative as their own. Parents, the school board, day-care staff, babysitters, school teachers, all must share in the planning and responsibility for improving education for the community's children from age three to grade three. Early education is the sole province of no one of these groups. Though the school district is the fiscal agent for any state funds for early education, its receipt of these funds is contingent on its sharing responsibility with these other citizens, and jointly designing the local early education project.

It is up to each community to design its own efforts in early education. This Handbook has some suggestions and guidelines that you may choose to use as you plan your efforts.

We suggest five steps in a community's implementation of early education:

- Assess Your Community and School
- Identify Improvement Projects
- Gather Resources and Training
- Implement Projects on Schedule
- Re-assess Your Progress

SELF ASSESSMENT

How well is your community doing right now in serving the educational needs of children from age three to grade three? How many of the components of the Early Education Initiative already exist in some

form? A self assessment should find the answers to these questions. Using the text of this Handbook, and the checklist in Appendix A, the community should find out . . .

1. Kindergarten:
   * Is public kindergarten available to all five year olds in town?
   * What is the nature of the kindergarten? Does it conform to the developmental principles described in the Handbook?
   * How are children assessed before coming to kindergarten? What provisions are made for those whose development is delayed or accelerated beyond the norm?
   * How does the kindergarten interface with parents, day care centers, and others who care for children? How well do pupils make the shift from kindergarten to first grade?

2. The Primary Curriculum:
   * Are the expectations high, and made clear to parents and children?
   * Does the teaching focus on essential concepts rather than narrow academic skills?
   * Is the child's physical development paid due attention?

   — Language Arts —
   * How strong is the focus on oral language?
   * Is there evidence of active speaking and listening in the first three grades?
   * Do children practice speaking and listening in small peer groups? How often?
   * How often do children read for pleasure on their own?
   * Do children read and respond to other children's writing?
   * Do children talk together about the things they've read?
   * Does good children's literature abound in every classroom? (aside from the textbooks)
   * Are workbooks and ditto papers overused?
   * Do adults work with small groups of readers, talkers, and writers? How often?

   — Mathematics —
   * Does the teaching focus on the conceptual basis of mathematics?
   * Do the children learn math through the manipulation of concrete objects? How often?
   * Is the teacher trained to use these materials to teach the concepts of math?
   * Do children classify and measure and put things in order?

* Is geometry a major part of the math program?
* How does the teacher assess the children's mastery of math concepts?
* Are child-constructed charts, graphs, and tables clearly in evidence?
* Are children asked to summarize and explain their manipulations and measurements?
* Do children use the tools of mathematics to solve real-world problems?

— Science —
* Does the science program build on the child's natural curiosity? How?
* Is science activity and experimentation a regular and serious part of the primary school program?
* Are the essential concepts of science introduced to all children?
* Do children regularly observe, measure, record, and explain the natural and physical environment?
* Can children draw conclusions about events they observe?
* Is the science program spelled out, structured, and coordinated from year to year?
* Are all of the teachers prepared to teach science and interpret its principles to young children?
* Is there a store of science equipment and materials available and regularly used?

— The Arts —
* Does each child have the opportunity to express ideas through painting, drawing, movement, and music?
* Are children's art products displayed, performed, and reacted to by others?
* How are the arts presented to children in the first three grades? Do they attend performances, and analyze classic works of art?
* Are the arts integrated into other subject areas? How?
* How often do children come in contact with working artists and museum resources?
* Is there a planned and structured curriculum in the arts?

— Social Studies —
* Does social studies teaching focus on the learning of important ideas and concepts?
* Are creative and concrete teaching methods used?
* Are children exposed to people and ideas from other cultures and times?
* Do children work in small groups?

- Can children explain the reasons for their decisions?
- Are all of the reasoning skills practiced regularly?
- Are children asked to put themselves in someone else's shoes?
- Is there a schoolwide social studies curriculum that all teachers follow?
- How often are social studies activities conducted?

— Health —

- Are all children presented with information about nutrition, fitness, self-concept, family life, and safety?
- Do children explore their health-related attitudes and beliefs?
- Are the teachers trained to lead discussions on these kinds of topics?
- Are children led to see the consequences of their actions on their own health?
- Do the teachers use every opportunity at hand to teach about good health?
- Do children study and measure and talk about their own bodies?

3. School Organization
   - Do teachers, parents, and the school leadership share in having high expectations for all children?
   - Are the school's expectations based on an understanding of child development?
   - Does the school have a strong principal who is an instructional leader?
   - Has the principal the time and support she needs to carry out her responsibilities?
   - How well are the school's goals and purposes communicated to parents and students?
   - Is each teacher adequately supervised and assisted by the principal?
   - Is the school orderly, clean, safe, and attractive?
   - Are the school's equipment and materials adequate for the developmental teaching described above?
   - How large and varied is the school's collection of literature for young students? Do students make extensive use of it?
   - Are microcomputers used in ways appropriate to primary-graders?
   - Is the school a bright and inviting place?
   - Do trust and enjoyment overshadow fear and boredom?
   - Are caring adults in evidence to help teachers and students?
   - Are children regularly engaged in small-group work with a knowledgeable adult?
   - Does the school adequately train and schedule adult volunteers and aides?

- How does the school determine entry and exit from the primary curriculum? Is it based on an assessment of each child's development?
- Does the school allow fast learners to move along, and slower learners to take the time they need?
- Are there alternative paths through the primary curriculum?
- What forms of flextime are used by the school?

4. Developmental Care for Three and Four Year Olds
   - Where are the 3's and 4's during the day? How many are there? What proportion are . . .
     — at home with a parent?
     — cared for by a relative?
     — at a neighborhood babysitter?
     — in a day care home?
     — in a day care center?
     — at a school-sponsored program?
   - What kinds of settings are parents looking for for their children?
   - How many of the adults who care for them are knowledgeable of child development principles? How many are prepared to act as educators?
   - In each setting listed above (home, center, babysitter, school) do these elements exist:
     — active focus on language development
     — interaction with objects
     — social interaction with peers
     — structured learning situations
     — exposure to arts, beliefs, and culture?
   - What proportion of children are in settings that do not meet these criteria?
   - Which settings need to be improved? How?
   - What new settings need to be established in the community?
   - How do the various child-care people, school people, and parents coordinate and cooperate with one another?
   - Does every three and four year old have the benefit of a developmental assessment?

As you can see, a true self-assessment of the community is no easy task. All of the questions above, plus others that will arise as you do your work, need careful attention. Involve as many people as possible in finding the answers to these questions. Divide the questions up among yourselves, and begin to seek the answers. You may find it wise to assign the same question to two or three different people, and instruct them to arrive at their answers independently.

Most of the questions cannot be answered "yes" or "no". There will be degrees of progress on most of them. Using a scale from 1 to 10, as proposed in the Appendix, may be a good way to express the extent to which each element is in place. Be prepared to entertain varying opinions among your group as they answer the questions.

Your best source of information will be interviews with people in the community, which can be done in person or by phone or through written surveys. Some information — such as the number and location of three and four year olds in town — will require research at the Town Clerk's office or in the 1980 Census ledgers. Other information — such as the nature of the school curriculum or the qualities of the child-care setting — can only be gathered by direct observation.

The Department of Education and several other agencies and groups are prepared to assist communities to make this self-assessment. We can provide sample survey instruments, model checklists, and workshop leaders to help you get started.

The results of the community self-assessment should be summarized and presented to parents, citizens, the school board, and the selectmen or city council. Release through newspapers and newsletters is also a good idea, to help raise community consciousness about the education of children from age three to grade three. Let the results of the self assessment sink in for a while. Get people to discuss it. See that it gets on the agenda of the school board, the Rotary Club, the Home Dem Club, the selectmen, and the PTA. Then go on to the next step.

IDENTIFY IMPROVEMENT PROJECTS

Out of the self-assessment should grow the community's needs for improvement in early education. The resultant discussions should make it evident which needs can most feasibly be met first.

We suggest you bring forth a list of needs, based on the findings of the self-assessment. State the needs in short, simple terms, and limit yourself to 10 or a dozen items. Each of these items should be stated as an "Improvement Project". A typical list of projects might look like this:

"In order to improve the education of children from age three to

grade three, the community of East Shoulderblade needs to:

1. Establish kindergarten as part of the public school opportunity for all children.
2. Train teachers in grades 1-3 to use Cuisenaire Rods and other devices in teaching mathematics.
3. Expand the collection of children's literature in the primary library by 300 books.
4. Revamp the science curriculum in the first three grades.
5. Shift the focus of health instruction away from personal hygiene and toward healthy attitude development.
6. Increase the released time of the principal from 1/5 time to 1/2 time.
7. Establish a developmental screening for entrance into first grade.
8. Move to a continuous-progress curriculum in reading and math in the first three grades.
9. Begin a series of parent workshops in math and language development.
10. Provide tuition for 3 and 4's to attend the Shoulderblade Center Preschool.
11. Conduct three joint inservice training sessions for staff from the school and the preschool.
12. Organize a regular "moving playgroup" for 3's and 4's in the rural North Shoulderblade area of town."

GATHER RESOURCES

Once your plan of action has been written down and made widely known to parents and the public, it's time to find and collect the resources — both fiscal and personal — that you will need to make all these improvements. Some of the resources may come earlier and easier than the others; you should implement those aspects first. You may, for instance, be able to get a series of math training sessions for both teachers and parents from the state's Inservice Institute at little or no cost, right away. So you'll choose to implement items #2, #9, and #11 immediately. Other resources, such as a teaching replacement for the principal or tuition payments to the preschool, may take a year or more to gather. These items can be scheduled later for implementation.

Where to find resources? The State Department of Education expects to have an Early Education Fund available to cover some of the costs of many of these improvements. Go there with your list of needs and seek support.

Go also to your local taxpayers. Many Vermont communities support early education, including the education of three and four year

olds, through tax-supported activities and programs. Federal funds available to the local school district from Chapter 1 and Chapter 2 can also be used for early education projects.

Many of the items listed above do not require money so much as they require personal assistance and institutional change. Several of the items call for workshop leaders and consultants to work with teachers and parents to do training and make changes in the way things operate. The State Education Department's Resource Center can help you to find the personal resources your community might need to accomplish its objectives. There are RAP Agents, Professors from the University and the Colleges, day care planners, curriculum consultants, and trainers available to you, usually on a cost-sharing basis.

Along these same lines, the Resource Center can put you in touch with other Vermont communities which have already been where you're headed. Go visit them. See how they've done it. Talk to them about their successes and failures.

Take time to gather resources. Assign the tasks to various members of the community, then arrange a session where their findings can be shared. Then use the resources. Schedule in the consultants. Make the written proposals for funds and put the items in next year's budget request. Arrange for the workshops and training sessions. Set up a time line, showing when each of your items will be carried out.

IMPLEMENT PROJECTS

Someone must take responsibility to see that each improvement project is actually carried out according to schedule. Do not rely on simple agreements and fine plans to carry out action all by themselves. Someone must be accountable to "deliver the goods."

And don't be afraid to move right in to implementation. It's very easy to put off doing something and just talk about it instead, especially in this field. As Hamlet reminds us:

> And thus the native hue of resolution
> Is sicklied o'er with the pale cast of thought;
> And enterprises of great pith and moment,
> With this regard, their currents turn awry,
> And lose the name of action.

Choose the items to implement, set a schedule, assign responsibility, then act!

Regular meetings to check progress, and regular reports to the public, will help keep your improvement-making on track. Communities with grants from the state will be required to make regular reports

and progress along their time line as a condition of funding.

RE-ASSESS PROGRESS

After a year or two, it is wise to again conduct a self-assessment of early education in your community. This will show how far you've come, allow you to take some pride in your progress, and encourage work for a better future. The same set of questions that formed your first self assessment can be the basis for your re-assessment.

In fact, improvements in early education should be made continuously, through a process of regular re-assessment of the community. In this way, the Initiative will continue and the education of young children will constantly improve. As new research uncovers better ways to educate children, and as more resources become available for this purpose, Vermonters will find further improvements that can be made.

APPENDICES

A. Self-Assessment Instruments
B. Compendium of Research Results
C. Names and Addresses of Projects and Resources

APPENDIX A

COMMUNITY SELF-ASSESSMENT CHECKLIST

| 1 • 3 • 5 |

1 = LITTLE EVIDENCE
5 = MUCH EVIDENCE

1. Kindergarten:

| 1 • 3 • 5 | * Is public kindergarten available to all five year olds in town?
| 1 • 3 • 5 | * What is the nature of the kindergarten? Does it conform to the developmental principles described in the Handbook?
| 1 • 3 • 5 | * How are children assessed before coming to kindergarten? What provisions are made for those whose development is delayed or accelerated beyond the norm?
| 1 • 3 • 5 | * How does the kindergarten interface with parents, day care centers, and others who care for children? How well do pupils make the shift from kindergarten to first grade?

2. The Primary Curriculum:

| 1 • 3 • 5 | * Are the expectations high, and made clear to parents and children?
| 1 • 3 • 5 | * Does the teaching focus on essential concepts rather than narrow academic skills?
| 1 • 3 • 5 | * Is the child's physical development paid due attention?

— Language Arts —

| 1 • 3 • 5 | * How strong is the focus on oral language?
| 1 • 3 • 5 | * Is there evidence of active speaking and listening in the first three grades?
| 1 • 3 • 5 | * Do children practice speaking and listening in small peer groups? How often?
| 1 • 3 • 5 | * How often do children read for pleasure on their own?
| 1 • 3 • 5 | * Do children read and respond to other children's writing?
| 1 • 3 • 5 | * Do children talk together about the things they've read?
| 1 • 3 • 5 | * Does good children's literature abound in every classroom? (aside from the textbooks)
| 1 • 3 • 5 | * Are workbooks and ditto papers overused?
| 1 • 3 • 5 | * Do adults work with small groups of readers, talkers, and writers? How often?

— Mathematics —

| 1 • 3 • 5 | * Does the teaching focus on the conceptual basis of mathematics?

1 • 3 • 5 • Do the children learn math through the manipulation of concrete objects? How often?

1 • 3 • 5 • Is the teacher trained to use these materials to teach the concepts of math?

1 • 3 • 5 • Do children classify and measure and put things in order?

1 • 3 • 5 • Is geometry a major part of the math program?

1 • 3 • 5 • How does the teacher assess the children's mastery of math concepts?

1 • 3 • 5 • Are child-constructed charts, graphs, and tables clearly in evidence?

1 • 3 • 5 • Are children asked to summarize and explain their manipulations and measurements?

1 • 3 • 5 • Do children use the tools of mathematics to solve real-world problems?

1 • 3 • 5

— Science —

1 • 3 • 5 • Does the science program build on the child's natural curiosity? How?

1 • 3 • 5 • Is science activity and experimentation a regular and serious part of the primary school program?

1 • 3 • 5 • Are the essential concepts of science introduced to all children?

1 • 3 • 5 • Do children regularly observe, measure, record, and explain the natural and physical environment?

1 • 3 • 5 • Can children draw conclusions about events they observe?

1 • 3 • 5 • Is the science program spelled out, structured, and coordinated from year to year?

1 • 3 • 5 • Are all of the teachers prepared to teach science and interpret its principles to young children?

1 • 3 • 5 • Is there a store of science equipment and materials available and regularly used?

— The Arts —

1 • 3 • 5 • Does each child have the opportunity to express ideas through painting, drawing, movement, and music?

1 • 3 • 5 • Are children's art products displayed, performed, and reacted to by others?

1 • 3 • 5 • How are the arts presented to children in the first three grades? Do they attend performances, and analyze classic works of art?

1 • 3 • 5 • Are the arts integrated into other subject areas? How?

1 • 3 • 5 • How often do children come in contact with working artists and museum resources?

1 • 3 • 5 • Is there a planned and structured curriculum in the arts?

— Social Studies —

1 • 3 • 5 • Does social studies teaching focus on the learning of important ideas and concepts?

| 1 • 3 • 5 | * Are creative and concrete teaching methods used?
| 1 • 3 • 5 | * Are children exposed to people and ideas from other cultures and times?
| 1 • 3 • 5 | * Do children work in small groups?
| 1 • 3 • 5 | * Can children explain the reasons for their decisions?
| 1 • 3 • 5 | * Are all of the reasoning skills practiced regularly?
| 1 • 3 • 5 | * Are children asked to put themselves in someone else's shoes?
| 1 • 3 • 5 | * Is there a schoolwide social studies curriculum that all teachers follow?
| 1 • 3 • 5 | * How often are social studies activities conducted?

— Health —

| 1 • 3 • 5 | * Are all children presented with information about nutrition, fitness, self-concept, family life, and safety?
| 1 • 3 • 5 | * Do children explore their health-related attitudes and beliefs?
| 1 • 3 • 5 | * Are the teachers trained to lead discussions on these kinds of topics?
| 1 • 3 • 5 | * Are children led to see the consequences of their actions on their own health?
| 1 • 3 • 5 | * Do the teachers use every opportunity at hand to teach about good health?
| 1 • 3 • 5 | * Do children study and measure and talk about their own bodies?

3. School Organization

| 1 • 3 • 5 | * Do teachers, parents, and the school leadership share in having high expectations for all children?
| 1 • 3 • 5 | * Are the school's expectations based on an understanding of child development?
| 1 • 3 • 5 | * Does the school have a strong principal who is an instructional leader?
| 1 • 3 • 5 | * Has the principal the time and support she needs to carry out her responsibilities?
| 1 • 3 • 5 | * How well are the school's goals and purposes communicated to parents and students?
| 1 • 3 • 5 | * Is each teacher adequately supervised and assisted by the principal?
| 1 • 3 • 5 | * Is the school orderly, clean, safe, and attractive?
| 1 • 3 • 5 | * Are the school's equipment and materials adequate for the developmental teaching described above?
| 1 • 3 • 5 | * How large and varied is the school's collection of literature for young students? Do students make extensive use of it?
| 1 • 3 • 5 | * Are microcomputers used in ways appropriate to primary-graders?
| 1 • 3 • 5 | * Is the school a bright and inviting place?
| 1 • 3 • 5 | * Do trust and enjoyment overshadow fear and boredom?
| 1 • 3 • 5 | * Are caring adults in evidence to help teachers and students?

| 1 • 3 • 5 | * Are children regularly engaged in small-group work with a knowledgeable adult?

| 1 • 3 • 5 | * Does the school adequately train and schedule adult volunteers and aides?

| 1 • 3 • 5 | * How does the school determine entry and exit from the primary curriculum? Is it based on an assessment of each child's development?

| 1 • 3 • 5 | * Does the school allow fast learners to move along, and slower learners to take the time they need?

| 1 • 3 • 5 | * Are there alternative paths through the primary curriculum?

| 1 • 3 • 5 | * What forms of flextime are used by the school?

4. Developmental Care for Three and Four Year Olds

| 1 • 3 • 5 | * Where are the 3's and 4's during the day? How many are there? What proportion are . . .
— at home with a parent?
— cared for by a relative?
— at a neighborhood babysitter?
— in a day care home?
— in a day care center?
— at a school-sponsored program?

| 1 • 3 • 5 | * What kinds of settings are parents looking for for their children?

| 1 • 3 • 5 | * How many of the adults who care for them are knowledgeable of child development principles? How many are prepared to act as educators?

| 1 • 3 • 5 | * In each setting listed above (home, center, babysitter, school) do these elements exist:
— active focus on language development
— interaction with objects
— social interaction with peers
— structured learning situations
— exposure to arts, beliefs, and culture?

| 1 • 3 • 5 | * What proportion of children are in settings that do not meet these criteria?

| 1 • 3 • 5 | * Which settings need to be improved? How?

| 1 • 3 • 5 | * What new settings need to be established in the community?

| 1 • 3 • 5 | * How do the various child-care people, school people, and parents coordinate and cooperate with one another?

| 1 • 3 • 5 | * Does every three and four year old have the benefit of a developmental assessment?

SCIENCE AND MATH MATERIALS CHECKLIST

- ☐ Tuning forks
- ☐ Thermometers
- ☐ Masses/balances
- ☐ Compasses
- ☐ Magnets/iron filings
- ☐ Pictures of animals/plants
- ☐ Measuring devices — rulers, tapes, cups, trundle wheels, measuring cups
- ☐ Rock and mineral samples/fossils
- ☐ Light sources/electricity materials
- ☐ Wire/batteries/switches
- ☐ Prisms
- ☐ Seeds, soil, pots
- ☐ String, pulleys, wheels, axles, gears
- ☐ Globe
- ☐ Graph paper
- ☐ Simple chemicals
- ☐ Candles
- ☐ Magnifying lenses/hand lenses
- ☐ Balloons, jars, cans
- ☐ Microscopes/slides
- ☐ Rain gauge/barometer
- ☐ Animal cages
- ☐ Aquarium
- ☐ Terrarium
- ☐ Insect nets
- ☐ Collection containers
- ☐ Plastic tongs/forceps
- ☐ "Visible Man"
- ☐ Cuisennaire Rods
- ☐ Attribute Blocks
- ☐ Building Blocks
- ☐ Shape Blocks
- ☐ Spring scales
- ☐ Counting and sorting materials: beads, macaroni, buttons, etc.
- ☐ Plastic tubing
- ☐ Register tape
- ☐ Microcomputer with LOGO and other software
- ☐ Science work space
- ☐ Child-accessible storage space
- ☐ Math games/Science games
- ☐ Maps
- ☐ Clay
- ☐ Litimus paper/pH indicator
- ☐ Clipboards

EMERGING READER CHECKLIST

BEST COPY AVAILABLE

APPENDIX B

The Research Background for Early Childhood Education

compiled by

Charles Rathbone
Lawrence G. Shelton

University of Vermont

INTRODUCTION

This Appendix provides a research data base to the Early Childhood Initiative proposed by the Vermont State Department of Education. There is no single collection of research that informs such an effort. The research reported in this paper is gathered from three areas of study: child development, early childhood education, and research on effective school practices. We provide a framework that integrates diverse research findings into several statements that support a variety of options for an early childhood education initiative in Vermont. This statement recognizes the limitations of individual research studies. We have chosen not to review individual studies in detail. The literature expands daily and the references provide specific documentation for anyone seeking this specificity. Rather, we have chosen to describe the general conclusions and principles that can be derived from the available research and to discuss their implications for the development of an early childhood education initiative in Vermont.

No single research study or group of studies exist which define specific preschool experiences linked to high academic achievement in the primary grades for all children. (Gage, 1982) Therefore, a framework that links early childhood experiences to school experiences is necessary to show the potential interrelationships of existing research. Our attempt is to portray an accumulation of research evidence that relates characteristics and settings of young children's growth and development to later school success. Such a transcending framework permits individual research studies to be placed in relationship to one another. This framework allows the overall goals of an early childhood initiative to be kept in mind while guiding the choice of specific elements that are addressed by available research. Without such a framework, the absence of comprehensive research efforts establishing a cause and effect relationship between experiences in early childhood and subsequent academic success would lead to use of research findings in a helter skelter fashion to support particular points of view.

FRAMEWORK

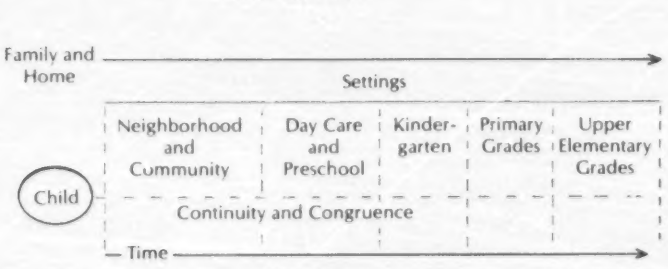
The transcending framework that provides the foundation for Vermont's Early Childhood Initiative may be summarized in three related statements.

Statement 1. *Children* develop in describable, systematic ways. Their lives are continuous from one day to the next. Individual children are continuous within themselves, not making artificial separations among their parts. Children develop knowledge, attitudes and skills through their interactions with the rich worlds that surround them. While all children develop in similar ways they are also all different. Variability occurs because children have their own unique genetic makeups, individual rates of maturation, and experiences.

Statement 2. *Schools* are one of the important environments through which children move as they develop. Schools, like every other environment, have characteristic expectations for and interactions with children. Different families, communities and schools share similarities and important differences. Each environment has different expectations which children cope with using the skills and attitudes acquired in previous experiences.

Statement 3. Each environment facilitates children's development according to the *congruity* between a) the characteristics and needs of the children entering it, an b) the expectations and interactions of the adults in that environment. *Continuity* between environments or settings through which children pass is an important determinant of the children's adjustment to and success in each succeeding setting.

A graphic representation of the relationship intended in this framework may be helpful.



In summary, a child develops through its transactions with an ever changing environment. The fit between the child's developmental status and the expectations of that environment are important determinants of the child's adaptation to and use of the opportunities embodied in any new setting.

Based on this frame of reference, the Vermont Early Childhood Education Initiative has two general goals. The first goal is to make the educational environments for young children *continuous* across time and across their parts. The second goal is to make the early childhood educational environments *congruent* with the child's development; to provide opportunities children can use and learn from. Schools should be made ready for children. We can control, design, and influence environments, not children.

RESEARCH

With the frame of reference established above, it is possible to organize and describe general conclusions from available research on early childhood development and education.

1. The most important environment in determining the child's academic performance and general level of competence in the school setting is the home.
2. Children learn through active experience in their worlds. They learn best and what they learn is most generalizeable when their experience is mediated by language, that is when they are provided ways to verbalize their experience and to have their experience described by others, particularly adults (Clarke-Stewart & Apfel, 1979). What children learn is most useful when it is learned and applied in diverse contexts.
3. Language is the central factor in the child's developing intellectual skills. Activities emphasizing the development of language abilities in the second and third years of life by parents are the best predictors of the child's general cognitive developmental progress in the preschool years (Carew, 1980). Experiences in the preschool years that focus on language use and comprehension are most beneficial to the development of reading ability in the early grades. (Chomsky, 1972)
4. Children who attend preschools perform better academically in the later years than children who do not (Lazar and Darlington, 1982). Children attending preschool are more likely to meet basic school requirements and are less likely to need special educational services.
5. Early childhood educational experiences cannot overcome either the positive or negative influences of the home.
6. Early childhood programs benefit all children who participate in them, but they do not close the gaps between poor and middle class children. Children in each income level who participate do better in later years than those who don't. (Coats, B. and Napier, L., 1980)

7. Children who attend kindergarten do better in first grade and in later grades than children from the same communities who do not attend kindergarten. In communities where some children have the opportunity for specific experience such as kindergarten, children who are not afforded that opportunity are at a disadvantage thereafter, as they progress through the same environment (Coats & Napier, 1980).
8. Full day kindergarten programs are preferred to half-day programs by parents, teachers and children. Children who attend full day kindergarten programs do better academically in the primary grades than children who attend half-day kindergarten programs. (Adcock, 1980; School District of The Tomorrow River, 1980)
9. The most effective preschool intervention programs are those which involve parents (Honig, 1982). Parental involvement in educational settings makes the settings more continuous for the child and therefore makes it possible for the child to adapt to the new setting more easily and also increases the reinforcement of material learned in school at home, by increasing the parents' awareness of what the child experiences at school.
10. The most lasting effects of early childhood education programs are found when there is greater communication, continuity and coordination between levels. When an early intervention program is coordinated with the home, that program has more lasting effects. When a first grade curriculum is coordinated with the kindergarten curriculum then the longterm effects of attending kindergarten are greater than when there is discontinuity between the first grade and the kindergarten curriculum. (Bronfenbrenner, 1979)
11. Early screening designed to identify potential difficulties or special strengths of individual children is possible. When the results of screening are used to design appropriate experiences for children, it is possible to prevent deficits from developing into major problems and/or to ameliorate their long term effects. When screening is designed to provide appropriate experiences, it is possible to provide children opportunities that will maximize development of special potentials that they have. The provision of appropriate experiences in response to identification of deficits and strengths results in better coping skills for the child, less need for remedial or special educational services in the future, fewer behavior and academic problems, and greater satisfaction with school Early intervention costs less than later remediation. (Atkinson, 1980)
12. Programs for which children are not ready have detrimental affects. The research on screening for readiness demonstrates

that if one can identify the capabilities that are requisite for engagement and performance in a particular setting then one can identify children who will not perform well in those settings. When children identified as not being ready for the particular environment or program are placed in that environment or program the long term effects are lower school achievement and more reading problems, grade retention, need for special educational services, absenteeism, and dissatisfaction with school. (Carle, 1976)

13. Schools can be organized to serve children with diverse characteristics better. The literatures on Follow Through (Kennedy, 1978) and on gifted education indicate clearly that schools can change to do a better job of accommodating the specific experiences and needs of children from different backgrounds and in so doing serve all children better.
14. Teachers who are knowledgeable about the principles of child development and who design curricula accordingly do different things in classrooms than teachers who do not and are more effective. (Spodek, 1982)
15. The attitudes of school and educational professionals are important in determining the effectiveness of educational programs. Two specific attitudes that are important are 1) that all children can learn and 2) that a specific teacher can teach any child (Edmonds, 1979) The teacher who recognizes that children vary but can be taught effectively by attending to their specific past experience and level of competence can teach children effectively.
16. Experiences that help the child to understand social actions, social interactions, relationships, emotions, and values in the early years make a contribution not only to interpersonal competence within the classroom but also to academic skill acquisition. Programs that focus exclusively on specific skills develop specific skills, but not general academic competence. Programs that focus on the combination of affective, social and cognitive skills are more effective in developing general academic competence. (Carkhuff, 1982)
17. In some specific areas, such as math (Ginsberg & Russell, 1981) the prerequisite skills for learning within a school setting are robust; that is, they are developed from the child's general interaction with the normal environment. On these skills, poor children and middle class children enter school with the same capabilities. Poor children do not enter school with specific skill deficits. The later appearance of performance deficits thus cannot be attributed to differences in entering capability but instead must be attributed to differences in the later home

environment, school or elsewhere.

18. The evaluations of curricular approaches are not sufficiently rigorous to permit the choice of a most effective approach for all conditions of instruction and child backgrounds. (Gage, 1982)

CONCLUSIONS

The research evidence strongly supports the conclusion that well thought out and carefully supported early childhood programs will result in important cognitive and social gains for children and that these gains can be lasting. Well thought out programs are those that incorporate the following features:

- Attention to the developmental characteristics and variability of children.
- Involvement of parents, teachers, and developmental specialists in their design and evaluation.
- Continuity from level to level, setting to setting.
- Emphasis on language as central to the acquisition and use of knowledge.

Early childhood programs must be designed to identify, respond to and accommodate the wide variability among children. All children cannot be expected to transact with the same environment in the same way. It is necessary therefore, within an education program to accommodate the variability among children or to create different settings for children with different types of skills. It would be incorrect to assume that the foregoing implies that an educational program must have a completely individualized curriculum. No curriculum is so specific that it cannot accommodate variability across individuals. It is important to identify exceptions. These exceptions are the children who cannot cope with the curriculum offered and those children who cope with it so quickly that they need to be provided additional opportunities to remain motivated and satisfied. With very few exceptions, the wide range of variability can be accommodated within educational settings with appropriate planning and human resources.

Similarly, communities and families exhibit wide variability. Successful early childhood programs must be designed to accommodate the values and abilities of each local community. Each community's programs must be varied enough to allow maximum congruence and continuity for all.

The responsibility for the fulfillment of the Vermont Early Childhood Education Initiative does not reside with any single agency or institution. No agency or institution can control the whole series of environments in which young children participate. Each agency or

institution can participate in a shared conceptual framework such as that outlined here. Each agency or institution can contribute to the fulfillment of this initiative by participating in a structure designed to assure continuity from one setting to the next and the best possible congruence between the individual child's abilities and the opportunities provided in each setting.

Selected References

Adcock, E.P. A comparison of half-day and full-day kindergarten classes on academic achievement. Baltimore: Maryland State Department of Education, 1980.

Atkinson, J.K. (Ed.) *Too late at eight.* Brisbane: Queensland Univ., 1980.

Bronfenbrenner, U. *The ecology of human development.* Cambridge: Harvard, 1979.

Carew, J.V. Experience and the development of intelligence in young children at home and in day care. *Monographs of the Society for Research in Child Development.* 1980, *45,* Serial #187.

Carkhuff, R.R. *Interpersonal skills and human productivity.* Amherst, MA: Human Resource Development Press, 1982.

Carle, C. Developmental level — school success survey. Peterborough, NH, 1976.

Chomsky, C. Stages in language development and reading exposure. *Harvard Educational Review,* 1972, *42,* 1-33.

Clarke-Stewart, K.A. & Apfel, N. Evaluating parental effects on child development. In L.S. Shulman (Ed.), *Review of research in education.* Vol. 6. Itasca, ILL: Peacock, 1979.

Coats, B. & Napier, L. The effects of kindergarten attendance on mathematics achievement of middle and low socioeconomic level children. 1980. Eric Doc. No. Ed 196 719.

Edmonds, R. Some schools work, more can. *Social Policy.* 1979, March/April, 28-32.

Gage, N.L. *The scientific basis of the art of teaching.* New York: Teachers College Press, 1978.

Gage, N.L. & Berliner, D.C. *Educational Psychology,* 2nd ed. Chicago: Rand McNally, 1982.

Ginsburg, H.P. & Russell, R.L. Social class and racial influences on early mathematical thinking. *Monographs of the Society for Research in Child Development,* 1981, 46, Serial No. 193.

Greenfield, P.M. & Schneider, L. Building a tree structure. *Developmental Psychology,* 1977, *13,* 299-313.

Honig, A.S. Parent involvement in early childhood education. In B. Spodek (Ed.) *Handbook of research in early childhood education.*

New York: Free Press, 1982.
Ives, W. and Pond, J. The arts and cognitive development. *The High School Journal*, 1980, 63, 335-340.
Kennedy, M.M. Findings from the Follow Through planned variation study. *Educational Researcher*, 1978, 7, No. 6, 3-11 & 134-135.
Lazar, I. Berlington, R. Lasting effects of early education: A report from the consortium for longitudinal studies. *Monographs of the Society for Research in Child Development*, 1982, 47, Serial No. 195.
School District of The Tomorrow River. A comprehensive study and evaluation of three types of kindergarten programs. Amherst, WI: 1980.
Spodek, B. & Saracho, J.N. The preparation and certification of early childhood personnel. In B. Spodek (Ed.) *Handbook of research in early childhood education*. New York: Free Press, 1982.
Woo[illegible]uff, B.J. A comparison of grade retention and of basic skills test scores of pupils who did and who did not attend kindergarten. Nashville: Tennessee State Department of Education, 1980.

APPENDIX C

NAMES AND ADDRESSES OF PROJECTS AND RESOURCES

Name	Address	Specialty
Agne, Russell Professor	University of Vermont Burlington, VT 05405	Primary Science
Arata-Meyers, Phyllis Teacher	Woodstock Elementary School Woodstock, VT 05091	Shared Book Experience
Austin, Patricia Parent	54 Killington Avenue Rutland, VT 05701	Intelligent TV Viewing
Battey, Jean Consultant	Vt. Dept. of Education Montpelier, VT 05602	Library/Media
Boerner, Hannelore Consultant	Vt. Dept. of Education Montpelier, VT 05602	Health
Brinkmeyer, Donna Consultant	Vt. Dept. of Education Montpelier, VT 05602	Arts/Gifted and Talented
Brook, Robbe Teacher	Addison Central School Vergennes, VT 05491	Practical Practices for Parents
Brooks, Nancy Teacher	Academy School Brattleboro, VT 05301	Reading and Writing
Byrnes, Anne Teacher	1516 Williston Road So. Burlington, VT 05401	Montessori Methods
Cate, Sandal Teacher	Main Street School Montpelier, VT 05602	Environmental Studies
Colgan, Joan Teacher	Bennington-Rutland Supervisory Union Manchester Center, VT 05255	Technology and Social Development
Davidson, Pat Lecturer	51 Riverside Street Watertown, MA 02172	Math and Child Development
Disorda, Margaret RAP Agent	Rutland Northeast Supervisory Union Brandon, VT 05733	Parents as Partners (K-Adult)

Dunn, Ann	P.O. Box 214 St. Johnsbury, VT 05819	Parent-to-Parent
Fightlin Day, Rachel Teacher	Box 75A Charlotte, VT 05445	Movement and Self-Expression
Finck, Donald Principal	Deerfield Valley Elementary School Wilmington, VT 05363	School Leadership
Fish, Leona Consultant	Vt. Dept. of Education Montpelier, VT 05602	Elementary Education
Grams, Armin Professor	University of Vermont Burlington, VT 05405	Parents' Role in Child Development
Gray, Susan Principal	Charleston Elementary School West Charleston, VT 05872	Concepts for Young Children
Gregg, Daniel Consultant	Vt. Dept. of Education Montpelier, VT 05602	Social Studies
Green, Sharyl Ann RAP Agent	821 Loomis Street Burlington, VT 05401	Seeing Your Outdoor Space With New Eyes Preschool-Adult
Grout, Wilsene Teacher	RFD 2 Putney, VT 05346	Math Their Way
Guyette, Elise Teacher	18 Upper Newton St. St. Albans, VT 05478	Child As Historian
Gyra, Frank Teacher	6 Linden Hill Woodstock, VT 05091	The Arts
Hale, Betsy Darby RAP Agent	Randolph Village School Randolph, VT 05060	The Key to Improved Reading & Writing at Every Level (K-3)
Hardy, Sue RAP Agent	Oxbow High School Bradford, VT 05033	Film Animation in the Classroom (Gr. 1-12)
Hastings, Judith Teacher	RFD Brookfield, VT 05036	Health Education

Hertz, Barry Associate Professor	Lyndon State College Lyndon, VT 05849	Early Education
Hunt, Nancy RAP Agent	Orchard School So. Burlington, VT 05401	Microcomputer Management Skills (K-6)
James, David Principal	Barre Town Elementary School Barre, VT 05641	Parent Organizations
Jameson, DeeDee Professor	University of Vermont Burlington, VT 05405	Human Development
Jones, Beverly RAP Agent	Rutland Northeast Supervisory Un. Brandon, VT 05733	Parents as Partners K-Adult
Kelley, Colleen Teacher	Charlotte Central Sch. Charlotte, VT 05445	The Arts
Kenney, Robert Consultant	Vt. Dept. of Education Montpelier, VT 05602	Math
Lash, Iris Professor	2835 Clearwaters Shelburne, VT 05482	Parenting the Gifted
Leighton, Lynn Debra RAP Agent	Grafton Elementary School Grafton, VT 05146	Vt. Social History & Colonial Activities (Preschool-Elem.)
Lengel, Jim Director	Vt. Dept. of Education Montpelier, VT 05602	Basic Education
Lingelbach, Jenepher Parent	Vermont Institute of Natural Science Woodstock, VT 05091	Environmental Learning for the Future
Lylis, Shayne Johanna RAP Agent	Sherburne Elementary School Killington, VT 05751	Writer's Workshop (K)
McClaskey, Molly Teacher	Williston Central Sch. Williston, VT 05495	Practical Practices for Parents
Mace, Judy Teacher	Ferrisburg, VT 05456	Promoting Good Health
Mazzuchi, Diana RAP Agent	Academy School Brattleboro, VT 05301	Thematic Approach to Teaching Social Studies (K-3)

Mekkelsen, Jane Teacher	Essex Town School District Essex, VT 05451	Reading and Science
Meltzer, Dean Bennet RAP Agent	Randolph Union High School Randolph, VT 05060	Energy Education Primer (Elem.-Adult)
Mercaldo, "Gus" Principal	Shelburne Village Sch. Shelburne, VT 05482	Primary Unit
Miles, Constance S. RAP Agent	Thayer School Burlington, VT 05401	Teaching Basic Skills Through the Use of Famous Paintings (Pre K-3)
Moore, Sue Speech Pathologist	Morrisville Elementary School Morrisville, VT 05661	Language Development
Nichols, Johanna Parent	32 Summer Street Montpelier, VT 05602	Discipline and Learning
Nowocienski, Betty Teacher	RD 4 Shelburne, VT 05482	Music and Development
Oglesby, Claire Principal	Westminster West Elementary School Westminster, VT 05158	School Leadership
Park, Adelle Professor	Vermont College Montpelier, VT 05602	Extended Day Care
Petry, Anne Professor	Rhode Island College Providence, RI 02908	Science and Social Studies
Pinckney, Elaine Principal	Morrisville Elementary School Morrisville, VT 05661	School Leadership
Poeton, John Consultant	Vt. Dept. of Education Montpelier, VT 05602	Reading
Pope, Veronica	Cherry Lane Music Co. Port Chester, NY 10573	Sesame Street
Pransky, Judy Teacher	Caledonia Central Supervisory Union Danville, VT 05828	Parents and Education

Rathbone, Charles Associate Professor	University of Vermont Burlington, VT 05405	Curriculum and Teaching
Richard, Nancy Professor	365 Sand Hill Road Peterborough, NH 03458	Cycles of Development
Richardson, Bruce Superintendent of Schools	Orleans Southwest Supervisory Union Hardwick, VT 05843	Parents as Consumers
Rider, T. Fenn Principal	Thayer School Burlington, VT 05401	Flextime
Robinson, Gerard Consultant	Vt. Dept. of Education Montpelier, VT 05602	Rural Education
Robison, Jean Consultant	Vt. Dept. of Education Montpelier, VT 05602	Elementary
Rood, Michael Professor	13 Myrtle Road Westfield, MA 01085	LOGO (Kids and Computers)
Ross, Ann Principal	Weybridge Elementary School Middlebury, VT 05753	Integrated Kindergarten
Schubert, Leda Deirdre RAP Agent	Cabot School Cabot, VT 05647	Oral History in the Schools (Gr. 5-12)
Shelton, Larry Associate Professor	University of Vermont Burlington, VT 05405	Human Development
Sherry, Doug Teacher	Main Street School Montpelier, VT 05602	Environmental Studies
Shiman, David Professor	University of Vermont Burlington, VT 05405	Global Studies
Squires, Jim Professor	Champlain College Early Childhood Program Burlington, VT 05401	Head-Start
Stimmel, Cherolyn M. RAP Agent	Union Elementary School Montpelier, VT 05602	Math Their Way (Gr. 1-2)
Tanner, George Consultant	Vt. Dept. of Education Montpelier, VT 05602	Science

Tarrant, Rebecca Chief	Vt. Dept. of Education Montpelier, VT 05602	Curriculum & Instruction
Taub, Herman	Mediax Westport, CT 06880	Assessment of Development
Taylor, Anne RAP Agent	Oxbow High School Bradford, VT 05033	Film Animation in the Classroom (Gr. 1-12)
Taylor, John Consultant	Vt. Dept. of Education Montpelier, VT 05602	Sex Equity
Tuttle, Fred Superintendent of Schools	South Burlington School District South Burlington, VT 05401	Influencing School Policy
Udis, Jonathan Principal	Washington Village School Washington, VT 05675	Social Skills
Verman, Howie Teacher	Burlington City School District Burlington, VT 05401	Big Books
Watson, Frank Professor	University of Vermont Burlington, VT 05405	Parents, Kids and Computers
Whiting, Alice Professor	Johnson State College Johnson, VT 05656	Child Development and Learning
Williams, Geri Teacher	Mt. Lebanon School Lebanon, NH 03766	Writing
Woolfson, Anne Professor	St. Michael's College Winooski, VT 05404	Parent Advocacy